PART A

1 - Research Project Title

Advanced mechanical modeling of new materials and structures for the solution of 2020 Horizon challenges

2 - Duration (months)

36 months

3 - Main ERC field

PE - Physical Sciences and Engineering

4 - Possible other ERC field

5 - ERC subfields

1. PE8_3 Civil engineering, architecture, maritime/hydraulic engineering, geotechnics, waste treatment
2. PE8_8 Materials engineering (metals, ceramics, polymers, composites, etc.)
3. 

6 - Key Words

1. INNOVATIVE STRUCTURES AND CONSTITUTIVE MODELING
2. ADVANCED MECHANICAL NUMERICAL METHODS
3. DESIGN OF CIVIL ENGINEERING STRUCTURES

7 - Principal Investigator

DI PAOLA
(Surname)

MARIO
(Name)

Professore Ordinario
(Category)

20/02/1947
(Date of birth)

DPLMRA47B20D969M
(Personal identification code)

Università degli Studi di PALERMO
(University)
### 8 - List of the Research Units

<table>
<thead>
<tr>
<th>n°</th>
<th>Associated Investigator</th>
<th>Category</th>
<th>University/Research Institution</th>
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<td>1.</td>
<td>DI PAOLA Mario</td>
<td>Professore Ordinario</td>
<td>Università degli Studi di PALERMO</td>
<td><a href="mailto:mario.dipaola@unipa.it">mario.dipaola@unipa.it</a> (adesione completata il 24/12/2015)</td>
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<td>Professore Associato confermato</td>
<td>Università degli Studi di ROMA &quot;La Sapienza&quot;</td>
<td><a href="mailto:patrizia.trovalusci@uniroma1.it">patrizia.trovalusci@uniroma1.it</a> (adesione completata il 14/12/2015)</td>
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<td>Professore Ordinario</td>
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### 9 - Research project abstract

Challenges for the contemporary society call for significant technological improvements to be achieved in different fields,
such as risk mitigation of Cultural Heritage, sustainable raw material supply and safeguard of social security, in accordance with the topics of the Horizon 2020 Framework Programme. Among the cited challenges, we plan to solve the following target problems:

- Structural analysis of Heritage building and Reliability of masonry structures
- Next generation materials and methodologies for vibration abatement and enhanced design
- Structural nonlinear analysis of Concrete and Composite buildings

It is believed that the key to successfully approach such a broad range of problems is the study of the mechanical behavior of innovative materials, relying on effective constitutive and structural modeling and advanced numerical methods. Such investigations require a final validation step, implemented through the analysis of specific real-life case studies, belonging to different engineering areas in which innovation is needed.

The study of the mentioned problems will be performed by using a multidisciplinary approach, involving interactions of several internationally recognized research units, which have already proved their capability of mutual collaboration (having won many PRIN and European Grants). The Research will focus on the following four different levels:

1. CONSTITUTIVE MODELS to capture material responses of importance for the applications of interest. In particular, attention will be devoted to classes of materials and effects, ranging from concrete, masonry, FRM composites to carbon-nanotubes.

2. STRUCTURAL MODELS to capture the response of macro- and micro-structures of interest.

3. NUMERICAL METHODS to perform simulations of real-life cases related to the project applications. In particular, attention will be devoted to integration schemes for the proposed constitutive equations as well as to techniques for the solution of initial/boundary-value problems, e.g., advanced approaches for nonlinear structural statics and dynamics, meshless methods for multiphysics interaction, homogenization and multiscale methods for micro/macro interaction.

4. REAL-LIFE CASE STUDIES to validate both the proposed constitutive models and numerical methods as tools to explore innovative solutions within the project target problems. In particular, the project will propose innovative solutions for the following real-life applications:

- Structural analysis of real masonry buildings (in Perugia, Venice, Palermo, Emilia Romagna, Rome);
- Design of sustainable retrofit techniques for civil structures based on high-performance concrete and composite materials;
- Development of advanced monitoring tools for structures and infrastructures.

For the topics under investigation we plan to adopt a virtual testing approach. Accordingly, the numerical models are calibrated using experimental data produced within the project.

### 10 - Total cost of the research project, per single item

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The project will contribute to the development of accurate and computationally effective constitutive models and numerical procedures for geometric and material nonlinear problems in structural mechanics. For the scientific background on these topics, we refer to the papers published by the coordinators of the single units (see B.2.3 and B.2.4) that guarantee the capability of the Group to pursue the Research goals. Specifically, the project will analyze macro-, micro- and nano-structures made of advanced heterogeneous materials containing different constituents distributed in the microstructure. Such materials are widely adopted in many engineering applications due to their superior overall properties in comparison with conventional materials. In cultural heritage preservation, for example, fiber reinforced cementitious matrix (FRCM) and fiber reinforced plastic (FRP) composites are a suitable solution for innovative repair and strengthening interventions [1-3].

At a smaller scale, new technologies in the research field of nanoelectromechanical systems (NEMS) can be developed by using potentials offered by nanomaterials, such as carbon nanotubes [4]. The mechanical behavior of innovative materials strongly depends on damage and other phenomena which take place at multiple scales, due to their heterogeneous nature [5-6]. Fracture and fatigue assessment of structural components, made of fibre-reinforced materials and weakened by multiple site damage (MSD), in fact, currently represent a challenging problem in advanced engineering applications [7]. Modern constitutive theories and a better overall understanding of nonlinear effects, such as damage, delamination, heterogeneity are powerful new tools that can improve significantly the mechanical performance of construction materials and structural systems [8-9].

Versatile approaches, that will play a key role in the design of advanced materials, have been proposed within the framework of multiscale methods [10]. Multiscale and multiphysics models, provide a sound base for many challenging structural engineering applications and, for this reason, will be widely adopted in the present research. Moreover, with respect to the historical masonry buildings the state of the art on the subject denotes a strong need to provide innovative structural modelling methodologies able to simulate the nonlinear behavior and to provide reliable results with a reasonable computational effort [11-12]. Available theoretical approaches are able to exactly describe micorscale masonry behaviour, but unable to solve problems at construction level [13-14]. The development of the research at different levels will allow the definition of procedures suitable to study the construction as a whole. Stochastic modeling can be advantageously used for the constitutive characterization of both masonry structures and composite materials [15]. Allowing to apply some classical and new approaches of static and dynamic structural analyses in which the structural parameters are considered to be random [16-17]. Advanced models are available in the literature to predict the behavior of composite structures reinforced with FRP materials, whereas a lack of approaches addressing the topic of their optimal design is found [18]. Much interest is currently being directed towards other kinds of composite structures, such as membranes. In this case, a significant effort is still needed to formulate ad-hoc constitutive models that fully exploit the features of the technical issues [19].

1 - State of the art

The mechanical behavior of innovative materials strongly depends on damage and other phenomena which take place at multiple scales, due to their heterogeneous nature [5-6]. Fracture and fatigue assessment of structural components, made of fibre-reinforced materials and weakened by multiple site damage (MSD), in fact, currently represent a challenging problem in advanced engineering applications [7]. Modern constitutive theories and a better overall understanding of nonlinear effects, such as damage, delamination, heterogeneity are powerful new tools that can improve significantly the mechanical performance of construction materials and structural systems [8-9].

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2 – Detailed description of the project: methodology, targets and results that the project aims to achieve and their significance in terms of advancement of knowledge

The Research Group is characterized by:
Number of research units: 19
Main staff involved: 95
Total months/person expected: 245.5
The information about the main staff involved are shown in details in the TAB.1.

TAB.1 Main staff involved

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Further the new collaborations are:
Number of research grants expected: 24
Predictable time commitment (months) for research grants: 173
The information about the major new contracts for staff specifically to recruit are shown in details in B.2.6.
The project will involve research activities carried out in several Laboratories for a total of 30 Meuro as shown in details in the TAB.2.

TAB.2 List of main Labs and related equipment values involved by the project
<table>
<thead>
<tr>
<th>Unit</th>
<th>Description</th>
<th>Available equipments</th>
<th>Total value of equipments (€)</th>
<th>Description</th>
<th>Available equipments</th>
<th>Total value of equipments (€)</th>
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</thead>
<tbody>
<tr>
<td>UNICAM (Bologna)</td>
<td>Research Laboratories &quot;Materials and Structures Engineering&quot;</td>
<td>FE software for multi-physics, structural analysis and design, high-performance Computing Cluster for parallel large-scale computations and visualizations</td>
<td>60,000,000.00</td>
<td>Laboratory of materials and structures</td>
<td>Machines for construction materials processing and testing, uniaxial shaking table for large-scale testing</td>
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<td>UNICIT (Caldem)</td>
<td>Structural Engineering Laboratory</td>
<td>Contracts Advanced System for compression/deflection tests on concrete (load/displacement/strain controlled), Instrumentation System for cyclic dynamic and fatigue tests.</td>
<td>1,000,000.00</td>
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<td>Structural Engineering Laboratory</td>
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<tr>
<td>UNIPA (Carpineto)</td>
<td>Materials and Structural Testing Laboratory</td>
<td>Testing machines and measurements devices allowing the performance of static and dynamic testing mechanical tests, a server/hybrid testing machine</td>
<td>400,000.00</td>
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<tr>
<td>UNIV (Cisano)</td>
<td>LabEx - IARW</td>
<td>Universal testing machine &quot;Durcor&quot; with 1200 kN load capacity and automatic data acquisition and management system. Press with 8000 kN load capacity. Data Acquisition System, Generator GSE, Universal System, Structural Dynamic Testing (hydraulic power unit, 4 actuators)</td>
<td>1,000,000.00</td>
<td>Centro Studi MISTI - Material Investigation, Modeling, Environmental, and Structural Identification</td>
<td>Digital data acquisition system: DBC Data 5000, Digital data acquisition system: DBC Data 500, High Sensitivity Accelerometers: DBC 5400; Ultrasound-diagnostic system: DBC 1000XFL; Driller laboratory: Driller laboratory: Digital Concrete Hammer; Digital video endoscope; Lightweight digital trimographs; acquisition systems for ceramic nes and vibrations; on soil and structures (Thermoterm® EMMER 360)</td>
<td>40,000.00</td>
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<td>POSTIS (Cisano)</td>
<td>Research Laboratory &quot;MASTIRAS&quot;</td>
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<tr>
<td>UNIPA (Di Pisa)</td>
<td>Experimental Structural Dynamic Testing Laboratory</td>
<td>Environmental noise structural monitoring for linear scale, large scale tests, and micro scale tests, equipped with 6 sensors, hydraulic actuators (load capacity 250 kN, 500 kN, 5 kN, stroke ±37 mm).</td>
<td>500,000.00</td>
<td>I.L. E. A. - Laboratory of Earthquake Engineering and Dynamic Analysis</td>
<td>Shaking tables system (two 2-DOF; frame-lab tables, max payload 40 kN, load capacity 100 kN, max stroke ±40 mm, stroke ±0.64 m). Real time control system able to drive the tables separately and simultaneously (hydraulic/electromechanical). TEAM Cube 5000 hydraulic shaker (exc. 50 kg at 40 Hz, freq. range 0-500 Hz). US 59736G-440 1-DOF electromechanical shaker (exc. 5000 kg at 40 Hz, freq. range 0-3000 Hz). Small-scale table testing through 2 metal shakers, 1 hydraulic table, 2 instrumented towers, several pneumatic force sensors, several piezoelectric accelerometers and 10 MPA data acquisition system. Strong floor - string wall reaction system (6 in height, 15 m long, 3.5 m length). Hydraulically actuated (max. 4000 MPA, n= 2×1000 MPA). Real time control system for static, pseudo dynamic and fatigue tests. Reaction frame equipped with a 2000 kN hydraulic actuator. Laboratory testing machines to perform mechanical characterization of building materials and advanced instrumentation to perform in situ destructive and non-destructive tests.</td>
<td>10,750,000.00</td>
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<td>UNIME (Faenza)</td>
<td>L.A.M.A.S. (Experimental Materials and Structural Testing)</td>
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<tr>
<td>UNISA (Firenze)</td>
<td>Structural Engineering Testing Hall</td>
<td>High-Pressure Hydraulic Distribution System (maximum oil flow rate: 20 l/min), Shear Compression Testing Machine (capacity 1200 kN), Shear/Hydraulic Testing Machine (capacity 100 kN), recently upgraded with a ZwickRoell control system, Column Testing Machine, Rigid Steel Reaction Walls equipped with a MTS control system, adiabatic actuators (range capacity 250-2000 kN) and load cells.</td>
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<tr>
<td>UNIPE (Geevola)</td>
<td>Dynamics laboratory</td>
<td>Measuring devices: accelerometers; displacement transducers; load cells; ODC: laser meter for measuring displacements; inclinometers, pachometer, sclerometer; strainmeter hammer; centrifugal comparators; HF Force balance. Acquisition systems: HBM 50-kN (16 channels), DITECH- DATA RETRICE (8 channels), DITECH- PL (16 channels), 16-PA (40 channels). Actuator devices: shaker; load press; adiabatic load press; torsional constant.</td>
<td>250,000.00</td>
<td>Materials laboratory</td>
<td>Instruments for analysis and characterization of granular materials. Static load press, ODC: laser load press for fatigue test, Tensile press for dynamic test, programmable press with either load and displacement control.</td>
<td>300,000.00</td>
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<tr>
<td>UNIRSP (Imola)</td>
<td>Construction materials testing laboratory</td>
<td>Hydraulic press, universal testing machine with automatic data acquisition, Charge pendulum, system for fatigue testing, Firewalls machine equipment, 3D digital image correlation system, portable equipment [ultrasonic testing for rebars location, sclerometer, fléoxit for masonry testing, strain gauges and transducers of different types].</td>
<td>1,000,000.00</td>
<td>Laboratory of drawing and industrial engineering equipment</td>
<td>OSG 3MmSapce Flash CNC 300 Multi-access, CAM 2 Fastr Laser Sander Titanium, Kona 6000A, 9000A 30 kN System - CubeX 100, Gabbiano 500, 3D Topographic system control software, acquisition system.</td>
<td>350,000.00</td>
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<td>Unit</td>
<td>Description</td>
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<td>Total value of equipments (€)</td>
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<td>UNINA (Mocetti de Sciera)</td>
<td>LABORATORIO UFFICIALE PROVE MATERIALE E STRUTTURE &quot;Adriano Guli&quot;</td>
<td>Shaking table system, universal testing machine Instron, universal MTS880 machine</td>
<td>2.800.000,00</td>
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<tr>
<td>UNIROMA1 (Roma)</td>
<td>EXPERIMENTAL, LABORATORY</td>
<td>Vibrating Table (Moog), Double effect jack (Schenck), Electrodynamic Shaker (Sairgin &amp; Watson), Electrodynamic Shaker (Dongfeng), Polishing jacks, LVDT displacement transducers, various accelerometers</td>
<td>100.000,00</td>
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<td>UNIROMA3 (Roma)</td>
<td>Modelling &amp; Simulation Lab (LaMIS)</td>
<td>In-house hardware computer; one cluster of multi-core processors workstations, one server, MSFT and one data server</td>
<td>36.000,00</td>
<td>Laboratory of computational MEKHINES (LAMABECSMARTLAB)</td>
<td>Linux Beowulf cluster of 18 CPU AMD Opteron at 2.4 GHz, Network of 16 workstations Pentium 4 at 3.2 GHz and 2GB of RAM, and 1 Workstation Pentium Intel® Xeon® Quad-Core 5410 3.0 GHz, and 4GB of RAM with printing and acquiring devices, II Software library: compilers for the implementation of computational codes, scientific codes (Maple, Mathematica, Matlab, Femlab, Consol) and finite elements computing tools (ABAQUS, ADINA, ANSYS CNTDEV, Lusas), scientific text editors</td>
<td>80.000,00</td>
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<tr>
<td>UNINA (Rossi)</td>
<td>LABORATORIO UFFICIALE PROVE MATERIALE E STRUTTURE &quot;Adriano Guli&quot;</td>
<td>Shaking table system, universal testing machine Instron, universal MTS880 machine</td>
<td>2.800.000,00</td>
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<td>POLIMI (Tallurud)</td>
<td>Textiles and Polymers Research Lab (Textiles Lab)</td>
<td>Biaxial machine for testing technical textiles and polymeric fabrics, based on a rigid square frame, with 3 electromechanical actuators and local cells on each side (max force 50kN); displacement/force-controlled tests</td>
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<tr>
<td>UNIMIB (Tiramisù)</td>
<td>Materials and structures testing laboratory</td>
<td>Universal tensile machine 603 kN; bending three/three points machine 200 kN; compression machine 3000 kN; testing machine for diagonal compression on masonry walls; instrumentation DIC; Digital imaging correlation system</td>
<td>300.000,00</td>
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<td>UNIROMA1 (Torvaldo)</td>
<td>&quot;Heritage-Lab&quot; laboratory in OISTeC - CIR in Scienza e Tecnica per la Conservazione del Patrimonio Storico - Architettonico</td>
<td>Analytical instruments for the characterisation of the properties of ancient and modern materials and their decay (infrared, Raman, Surface Enhancement Raman (SERS), FT-Raman and microFTIR spectrometers, Microscopics, Thermal analysis, porosimeters, spin counters, Hi-speed mixers, climatic chambers, systems for the preparation of thin sections</td>
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<td>UNIBO (Ubertino)</td>
<td>Materials, structures, and geotechnical laboratory (USG)</td>
<td>Two recently purchased servo-hydraulic universal MTS machines, a 3D fully equipped digital image correlation system with two high-resolution cameras, a semi-hydraulic jack, several data acquisition systems, non-destructive testing evaluation</td>
<td>450.000,00</td>
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<td>UNISALETTO (Zavattini)</td>
<td>Development of Integrated Procedures for Restoration of Monuments (<a href="http://www.unisl.e.it/centri/disprem">http://www.unisl.e.it/centri/disprem</a>)</td>
<td>Two 3D Laser Scanner flying time with millimeter precision Leica (CUF and Leica F70), Two Portable 3D Laser Scanner with optical triangulation and sub-millimeter precision (Kansas Minolta Vario 910 e Bagels), I Total Station (Leica TCR1010), Total Station (Leica TCR1201), Total Station (Leica TCR1000) and GPS Leica TKN3000 and GPS12500NS5 ROVER, One Fibroscope for inspection with 2 meter cable, One Spectrophotometer Konica Minolta CM-530d, Two thermographic sensors IR (FLIR E860h, 84), One Thermocycler</td>
<td>150.000,00</td>
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The Coordinators of the Research Units are members of Editorial Board of several International Journals, see TAB.3.

TAB.3 Editorial Board membership
The sets of objectives (O), methodologies (M) and results (R) are arranged according to the work packages (WPs) and related sub-packages, which have been envisaged for the project development. Please NOTE that the numbering of objectives, methodologies and results does NOT follow that of Tasks (listed in Section B.1.3) and that the correspondence between objectives, methodologies, results and the pertaining Tasks is shown in TAB.4.

WP1 Constitutive models (Leader: MAIORANA UNIPD)


MIUR - BANDO 2015
M1.2.1: Multiscale models; novel cohesive elements for FRP/concrete delamination; novel multiple site damage (MSD) approaches under static or cyclic loading; fractional calculus for single and multi-phase stress-strain relations. M1.2.2: Numerical investigation of FRCM/masonry debonding by means of cohesive models. M1.2.3: Theoretical and numerical models for analysis of freezing and salt transport processes in cementitious materials. M1.2.4: Experimental investigation and analytic interpretation of results. M1.2.5: Theoretical models and experimental analyses for the tensile behavior of high-performance cement-based composites; experimental tests on recycled aggregate concretes. R1.2.1: Limit surfaces and homogenized constitutive responses; routines for crack propagation analysis in cement-based materials; numerical simulation and validation via case studies and experimental tests. R1.2.2: Validation of theoretical and numerical models. R1.2.3: Validation of theoretical and numerical models. R1.2.4: Novel constitutive laws for design. R1.2.5: Novel design-by-testing procedure for achieving the strain hardening in tension; new eco-mechanical index for new structures.


WP2 Structural models (Leader: ROSATI UNINA)


WP2.2 Plane models. O2.2.1: Advanced modelling and numerical analysis of masonry walls. O2.2.2: New damage theories for thin membranes. M2.2.1: A macro-element approach for the nonlinear behavior of plane masonry structures; use of known and novel numerical methods to analyze masonry structures taking into account their microstructure; limit analysis. M2.2.2: Thermodynamic formulation of equilibrium problems by using non-convex potentials. R2.2.1: Numerical implementation and simulation of experimental results. R2.2.2: Predictive models for structural functionality of membranes.

WP2.3 Plates. O2.3.1: Development of enhanced plate models for mechanical and multiphysics analysis of laminates. M2.3.1: Advanced structural modeling; finite element implementation and numerical simulation; theoretical investigations. R2.3.1: Implementation and validation by means of benchmark models.

WP2.4 Shells. O2.4.1: Advanced modelling and numerical analysis of curved unreinforced and reinforced masonry elements. O2.4.2: Numerical methods for the optimal design of the fiber-reinforcement to strengthen existing masonry structures. O2.4.3: Modeling thin structures undergoing damage. M2.4.1: Advanced structural modeling: finite element implementation and numerical simulation; theoretical investigations. M2.4.2: Extension of an energy-based approach to solve a problem of optimal distribution of reinforcement material. M2.4.3: Dimensional reduction of enriched 3D continua. R2.4.1: Numerical implementation and simulation of experimental results. R2.4.2: Achievement of novel reinforcement solutions. R2.4.3: Continuum theory consistent with the 3D parent theory.

WP2.5 Half-spaces. O2.5.1: Evaluate internal forces in the structure due to soil flexibility under vertical and horizontal loads, either static or dynamic. M2.5.1: Extend classical Boussinesq and Cerruti solutions to account for arbitrary distributions of vertical and horizontal loads. R2.5.1: Validation of models under static and dynamic actions.


WP3 Numerical methods (Leader: ZAVARISE UNISALENTO)

WP3.1 Homogenization and multiscale methods. O3.1.1: Efficient and accurate multiscale approaches for the analysis of composite materials (masonry, concrete, FRP) undergoing damage growth. M3.1.1: DEM and combined FEM/DEM; homogenization techniques; multiscale methods; extended variational principles; numerical techniques to return statistical characterization of the response; digital image processing; estimation of the errors; stochastic approaches for structures with uncertain mechanical parameters. R3.1.1: Numerical implementation, simulation of case studies and validation of laboratory experimental results.

WP3.2 Meshless methods. O3.2.1: Versatile procedures for solving any-shaped transversal section under shear and torsion. M3.2.1: Harmonic polynomial functions. R3.2.1: Valid solutions leading to analytical ones.
WP3.3 Vibration analysis, control and dissipation. O3.3.1: Analysis and control of nonlinear dynamic response. O3.3.2: Innovative modeling of advanced techniques for dissipation and vibration control of structures. M3.3.1: New concepts/techniques for analysis/control of nonlinear phenomena. M3.3.2: Dynamic analysis and experimental tests; dissipative features of SMA by pre-tension of wires. R3.3.1: Efficient tools for reliable prediction of dynamic response. R3.3.2: Innovative theoretical formulation for matching experimental results; new design criteria; nonlinear tools for enhancing energy transfer and vibration damping.

WP3.4 Structural optimization and identification. O3.4.1: Optimization and identification techniques as structural analysis methods. M3.4.1: Energy methods for the analysis of 3D structures modeled as no-tension bodies; constitutive model for the behavior of structural membranes at first loading; integral-equation-based identification strategies to predict the cause of the detected damage. R3.4.1: Numerical codes for identification of damage and optimal reinforcement.

WP3.5 Integration of constitutive equations. O3.5.1: Nonlinear modeling of beams in the framework of finite elasticity and of multilayer structures with time-dependent effect. M3.5.1: Unified multiphysics formulation to compare a variety of nonlinear models with constitutive law in integral form. R3.5.1: Models for reliable prediction of mechanical behavior of complex structures.


WP4 Real-life case studies. (Leader: DI PAOLA UNIPA)

WP4.1 Masonry buildings. (see Picture n.1) O4.1.1: Dynamic and seismic analysis of masonry buildings. M4.1.1: Identification and structural analysis of case studies, including nonlinear static analysis, non-standard limit analysis, spectrum and signal analysis, modal analysis. R4.1.1: Benchmark analysis on real scale historical buildings.

WP4.2 Composite structures. O4.2.1: Durability analysis of concretes subjected to freezing and salt transport. M4.2.1: Definition of the theoretical model; standard FE formulation for the numerical model. R4.2.1: Model validation and application to real cases.

WP4.3 Nanomaterials. O4.3.1: Analysis of CNT nanocomposites and innovative nanodevices. M4.3.1: SEM analyses and nonlocal modeling; designing nanodevices based on small-scale effects. R4.3.1: Design tools for innovative nanodevices.

WP4.4 Laboratory and in situ testing. O4.4.1: Experimental tests on cement and innovative composite materials. M4.4.1: Shear bond tests performed on steel FRCM tapes bonded to concrete and masonry; characterization of recycled aggregates using experimental tests; experimental investigation of mortars reinforced by basalt fibers; digital image correlation and optical fibers; experimental tests on hybrid reinforced concrete beams; laboratory tests for mechanical and durability characterization of composites with natural/recycled fibers; strengthening of masonry specimens with composites; laboratory tests for mechanical characterization of cement/lime mortars with self-healing materials; non-destructive tests on case studies. R4.4.1: Calibration and validation of numerical and theoretical models.

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3 - Project development, with identification of the role of each research unit and research organizations involved, with regards to expected targets, and related modalities of integration and collaboration

Each research unit is characterized by specific competences, which will be integrated through the project consortium, also taking care of the results organization (including dissemination activities) and of the technical and scientific support to other partners. In the following a short description of the project will provided. It has been organized in four work-packages (WPs), each of which is composed of different tasks (Ts).

WP1 Constitutive models

WP1.1 Masonry: T1.1.1 Damage: Micromechanical models; T1.1.2 Fracture: Cohesive crack models; T1.1.3 Digital image processing for the separation of phases; T1.1.4 No-tension models; T1.1.5 Continuum macro-models and multiscale strategies: homogenization and micropolar continua; T1.1.6 Limit analysis based on non-associated laws; T1.1.7 Multiphase modelling of environmental ageing of masonry; T1.1.8 Micromechanical and interface models; T1.1.9 Fractional stress-strain relations; T1.1.10 Stochastic constitutive models.

WP1.2 Cements: T1.2.1 Damage: Micromechanical models; T1.2.2 Fracture: LEFM-based models; T1.2.3 Fracture: Cohesive crack models; T1.2.4 Fatigue: damage model of characteristic parameters; T1.2.5 Durability of cementitious materials with special regard to freezing; T1.2.6 Salt diffusion and precipitation and related mechanical effects; T1.2.7 UHPFRC-ultra high performance fiber reinforced concretes; T1.2.8 High performance cement-based composites; T1.2.9 Eco-mechanical analysis of cement-based composites; T1.2.10 Fractional stress-strain relations.

WP1.3 Composites and smart materials: T1.3.1 Damage: Micromechanical models; T1.3.2 Fracture: Cohesive crack models; T1.3.3 Fatigue: damage model of characteristic parameters and local fiber/matrix parameters; T1.3.4 Conglomerates with aggregate from recycling: coupled damage and plasticity models; T1.3.5 Conglomerates with aggregate from recycling:

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T-H-M models; T1.3.6 Concrete with polypropylene fibres for spalling risk mitigation: T-H-M models; T1.3.7 Shape memory materials; T1.3.8 Composite materials for tension membranes; T1.3.9 Continuum macro-models and multiscale strategies: random and/or periodic homogenization, multifield continua; T1.3.10 Thermo-mechanical behavior of microcracked composites; T1.3.11 Wave propagation in microcracked media: dispersion; T1.3.12 Micromechanical models for composite materials with natural fibres, durability; T1.3.13 Fractional stress-strain relations; T1.3.14 Stochastic constitutive models.

WP1.4 Nanomaterials: T1.4.1 MEMS-NEMS: multiphysics modeling; T1.4.2 Nanocomposites; T1.4.3 Self-healing materials for mortar; T1.4.4 Fractional stress-strain relations.

WP2 Structural models

WP2.1 Beams: T2.1.1 Multi-layer models; T2.1.2 Modeling of the bond behavior between steel FRCM and concrete/masonry members; T2.1.3 Bernoulli; T2.1.4 Timoshenko; T2.1.5 Finite displacement and strain models; T2.1.6 MEMS-NEMS: nonlinear dynamic behavior; T2.1.7 Thin-walled beams; T2.1.8 Fiber-free models; T2.1.9 Buildings; T2.1.10 Non-local effects; T2.1.11 Reddy model; T2.1.12 Modeling of non-linear beam with singularities.

WP2.2 Plane models: T2.2.1 Masonry walls; T2.2.2 Damaged nonlinear membranes.

WP2.3 Plates: T2.3.1 Multi-layer models; T2.3.2 Kirchhoff-von Karman; T2.3.3 Reissener-Mindlin-Reddy; T2.3.4 Laminated and FGM-based plates: thermomechanical coupling; T2.3.5 Microcracked plates.

WP2.4 Shells: T2.4.1 Fatigue: surface cracks interaction; T2.4.2 Masonry vaults; T2.4.3 Microcracked shells; T2.4.4 Modeling for spatial macro-elements; T2.4.5 Modeling of reinforced elements.

WP2.5 Half-spaces: T2.5.1 Generalized Boussinesq model; T2.5.2 Generalized Cerruti model; T2.5.3 Transversely isotropic half-spaces.

WP2.6 Carbon nanosheets and tubes: T2.6.1 Carbon nanosheets and tubes as nonstandard beams; T2.6.2 Micro and macro modeling of carbon nanosheets and tubes.

WP3 Numerical methods

WP3.1 Homogenization and multiscale techniques: T3.1.1 Homogenization and multiscale methods; T3.1.2 Multiscale crack propagation algorithms; T3.1.3 Damage: micromechanical models; T3.1.4 Random models; T3.1.5 Periodic models; T3.1.6 Statistically Equivalent Periodic Unit Cell (SEPUCh) - Homogenization residuals; T3.1.7 DEM & FEM/DEM models; T3.1.8 Static and dynamic stochastic analyses of masonry structures; T3.1.9 Static and dynamic stochastic analyses of composite structures.

WP3.2 Meshless methods: T3.2.1 Line element-less method; T3.2.2 Reliability of masonry structures; T3.2.3 Reliability of composite structures.

WP3.3 Vibration analysis, control and dissipation: T3.3.1 Reduced order modeling and methods for nonlinear dynamic analyses; T3.3.2 Analysis and control of nonlinear dynamic response; T3.3.3 Dynamic integrity as a novel approach to engineering design; T3.3.4 Energy transfer/harvesting via adaptive materials, devices and structures; T3.3.5 Tuned mass dampers; T3.3.6 Tuned liquid column dampers; T3.3.7 Rocking; T3.3.8 Vibration mitigation by means of shape memory wires.

WP3.4 Structural optimization and identification: T3.4.1 Optimization and identification techniques as structural analysis methods; T3.4.2 Optimization methods for structural design.

WP3.5 Integration of constitutive equations: T3.5.1 Time-dependent structures with integral-form laws.

WP3.6 High-performance finite element methods: T3.6.1 Mixed finite elements for multi-field continua; T3.6.2 Multi-field finite elements for fiber model-based 3D beams; T3.6.3 Mixed solid shell Finite Elements; T3.6.4 Efficiency of contact algorithms.

WP3.7 Imperfection sensitivity analysis: T3.7.1 Imperfection sensitivity analysis.

WP4 Real-life case studies

WP4.1 Masonry buildings: T4.1.1 Risk and resilience assessment of masonry constructions; T4.1.2 Analysis of strategic buildings in Emilia; T4.1.3 Dynamic and seismic behavior of masonry buildings. Case study: Baths of Diocletian (Rome); T4.1.4 Out-of-plane response of masonry infill walls: nonlinear analyses and comparisons with experimental results; T4.1.5 Analysis of masonry buildings in Venice; T4.1.6 Frequency mapping of buildings of Palermo cultural heritage; T4.1.7 Structural analysis of Heritage building.

WP4.2 Composite structures: T4.2.1 Fire behavior analysis of a tunnel; T4.2.2 Spalling analysis of aggregates from recycling; T4.2.3 Durability analysis of concretes subjected to freezing; T4.2.4 Durability analysis of concretes subjected to salt diffusion and precipitation.

WP4.3 Nanomaterials: T4.3.1 Analysis of CNT nanocomposites; T4.3.2 Analysis of innovative devices.

WP4.4 Laboratory and in situ testing: T4.4.1 Experimental tests on cement and innovative composite materials; T4.4.2 Experimental analysis of the end debonding in masonry and concrete specimens strengthened with steel FRCM strips; T4.4.3 Experimental tests of innovative materials and of materials from recycling for application in buildings; T4.4.4 Experimental tests of concrete reinforced with natural (basalt) fibers; T4.4.5 Experimental analysis of the FRCM-masonry interface; T4.4.6 Assessing the old concrete structures; T4.4.7 Hybrid reinforced concrete beams; T4.4.8 Experimentation for new materials and recycled materials in constructions; T4.4.9 In situ experimental campaign and structural dynamic identification.
WP 4.5 Monitoring: T4.5.1 Remote monitoring; T4.5.2 Environmental noise; T4.5.3 Advanced tools for monitoring; T4.5.4 Innovative mathematical models.

The role of each research unit and related modalities of integration and collaboration can be deduced from the attached Tables, referring to the proposed WPs.

**TAB. 1 Project development and role of each research unit**

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Moreover, the achieved results will be published in scientific papers, whose quality and quantity will constitute another important evaluation element.

Each Leader of WP (see B.1.2) will ensure the collaboration and the integration of the corresponding tasks by using the following tools:

- The website of the group: http://www.unipa.it/persone/docenti/p/antonina.pirrotta/prin-2015/ collecting final results, journal papers and conference proceedings and containing the necessary information about project, research units, past and future meetings. It will be of primary importance to maintain, update and keep in evidence the website.
- Intermediate workshops and meetings involving the research units, necessary in order to verify the synergy of activities and to face specific topics, also with the contribution of external scientists.
- Initial conference. This meeting, to be held in conjunction with Stochastic Mechanics Conference in Capri 12-15 June, will give to the research units the opportunity to present the objectives of the research to external scientists. The web site of the Conference is: https://workplace.unipa.it/persone/docenti/p/antonina.pirrotta/congresso-capri/
  The Conference is co-chaired by Prof. Antonina Pirrotta member of the project.
- Final conference. This meeting, to be held at the end of the three-years project, will give to the research units the opportunity to present the achieved results to external scientists.
- Involvement of external experts as discussants (see collaborations’ table), authors and referees of the scientific products presented during the workshops.
- Involvement of institutional authorities, topical associations, companies interested to the project.
- International conference proceedings are needed to prove the quality of the research and also to receive useful feedbacks.
- Publication of papers in international scientific journals. Publication in well cited and high impact-factor journals is necessary to obtain a confirmation of the scientific product quality from the referees.

Finally, we show the timetable of the WP activities.
4 – Possibile application potentialities and scientific and/or technological and/or social and/or economic impact of the project

The present project shares several targets and aims with Horizon 2020 programmatic documents, i.e. with the European Commission Proposal 2011/0402 (CNS) named "Establishment of The specific program implementing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and subsequent Regulation (EU) No 1291/2013. In particular, in accordance with Article 5(2) the general Horizon2020 objective shall be pursued through three mutually reinforcing priorities dedicated to: "Excellent science" (Part I), "Industrial leadership" (Part II), "Societal challenges" (Part III), but also "Spreading excellence and widening participation" (Part IV) and "Science with and for society" (Part V).

We believe that the present proposal has very strong connections with Horizon 2020 within the first three mentioned priorities, as discussed in the following. The specific objectives of Part I are met by our proposal, specifically in the following points: (a) strengthening frontier research; (b) strengthening research in Future and Emerging Technologies (FET); (d) strengthening European research infrastructures. For what concerns Part II, the project accomplishes the following specific objective mentioned in the programmatic document: a) boosting Europe's industrial leadership through research, technological development, demonstration and innovation in advanced materials. In fact, one of the core activity of the project is the constitutive modeling of advanced materials, such as new concrete mixes and carbon-nanotubes (see TAB.1 for connections with the specific Calls of Horizon 2020).

Advanced modeling and nonlinear dynamics may be exploited to significantly improve performance and safety of macro-to-nano structural elements and develop novel design criteria. Nowadays Computational Mechanics is becoming a more and more fundamental tool for many engineering disciplines. Micro- and nano-technologies constitute a perfect example of revolutionary fields where reliable numerical simulations play a crucial role.

Finally, our research targets can be linked to Horizon 2020 in view of Part III with particular reference to: (a) improving the lifelong health and well-being; (c) making the transition to a reliable, sustainable and efficient energy system (see TAB.2 for details).

Specifically, the project will monitor and analyze the structural behavior of at least 6 real historical and strategical buildings in Rome, Palermo, Venice and Emilia Romagna (see B.1.2). Such an activity will imply a primary social impact linked to safety in constructions. Moreover, no Italian CNR guideline addresses the strengthening of existing structures by using FRCMs. The results obtained within the proposed research program will make a significant contribution in order to issue an Italian CNR guideline on the design of externally bonded FRCM systems for strengthening existing structures. In this sense many members of the research group have developed the following guidelines recently issued by CNR on the structural use of FRPs: CNR-DT 200/2004, CNR-DT 200/2013 - R1, CNR-DT 201/2005, CNR-DT 202/2005, CNR-DT 203/2006, CNR-DT 204/2006, CNR-DT 205/2007 (http://www.cnr.it/sitocnr/ICNR/Attivita/NormazioneeCertificazione/).

Also, in terms of climate action, resource efficiency and raw materials, the EU with the Directive 2008/98/EC has recently adopted a policy meant to promote the use of recycled aggregates for concrete production up to 70% for 2020, even for structural purposes. Therefore the involvement of many research units on the characterization of recycled aggregates in concrete is in line with this specific objective (see B.1.2).

The study of the set of problems reported in TAB.2 will be approached in the present project through the significant interaction of all research units, which in the past have already proved their capability of mutual collaboration and networking also with internationally recognized research units (see TAB.3 for details). The created active network among research groups, still ongoing in most cases, is expected to be a valid background for the success of the proposed project and a clear advantage for its impacts on Horizon2020 scopes.

A summary of the main impact indicators related to the present project is reported in the attached TAB.4.
<table>
<thead>
<tr>
<th>Unit</th>
<th>CALL FOR ENERGY- EFFICIENT BUILDINGS</th>
<th>DISASTER-RESILIENCE: SAFEGUARDING AND SECURING SOCIETY, INCLUDING ADAPTING TO CLIMATE CHANGE</th>
<th>WASTE: A RESOURCE TO RECYCLE, REUSE AND RECOVER RAW MATERIALS</th>
<th>CALL FOR NANO-TECHNOLOGIES, ADVANCED MATERIALS, BIOTECHNOLOGY AND PRODUCTION</th>
<th>IMPETUOUS LOW-CARBON ENERGY</th>
<th>GREENING THE ECONOMY</th>
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<tr>
<td>UNICAL (Bruno)</td>
<td>Development of integrated approaches to retrofitting of buildings based on the use of innovative and smart materials.</td>
<td>Development of eco-innovative solutions for mitigating the effects of climate change and natural hazards on sites, structures and artefacts of cultural heritage, taking into account their value and respecting their cultural and historical integrity.</td>
<td>Development of novel numerical methods, fast algorithms and modelling tools, to be used as a support for the design of innovative materials and structures, thus promoting more efficient manufacturing processes.</td>
<td>Improvement of structural performances of composite materials for the realization of sophisticated control, automation and monitoring systems for buildings and infrastructures.</td>
<td>Cultural heritage as a driver for sustainable growth</td>
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<tr>
<td>UNICT (Cagliari)</td>
<td>Development of integrated approaches to retrofitting of buildings based on the use of innovative and smart materials.</td>
<td>Development of eco-innovative solutions for mitigating the effects of climate change and natural hazards on sites, structures and artefacts of cultural heritage, taking into account their value and respecting their cultural and historical integrity.</td>
<td>Innovative solutions for the conservation of 20th-century cultural heritage based on the use of innovative materials, including shape memory alloys.</td>
<td>Improvement of structural performances of composite materials for the realization of sophisticated control, automation and monitoring systems for buildings and infrastructures.</td>
<td>Cultural heritage as a driver for sustainable growth</td>
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<tr>
<td>ISIR (Cesena)</td>
<td>New technologies and strategies for the development of pre-fabricated elements through the reuse and recycling of construction materials and structures.</td>
<td>Innovative solutions for the construction of 20th-century cultural heritage; improved material durability in buildings and infrastructures, including offshore.</td>
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<td>Cultural heritage as a driver for sustainable growth</td>
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<td>POLITO (Milan)</td>
<td>Development of innovative technological solutions in the field of recycling and recovering raw materials from complex end-of-life products</td>
<td>Investigation on potential of current and new measures and technologies to enhance the response capacity to extreme weather and climate events affecting the security of people; development of eco-innovative solutions to help mitigate the effects of climate change and natural hazards on cultural heritage sites, structures and artefacts.</td>
<td>Material-based solutions for protection or preservation of European cultural heritage</td>
<td>Cultural heritage as a driver for sustainable growth</td>
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<td>UNIP (Milano)</td>
<td>Advanced tools for assessing the safety of cultural heritage sites, structures and artefacts against exceptional natural actions, in the earthquake; advanced techniques for the risk mitigation on the use of advanced materials.</td>
<td>Innovative solutions for the conservation of 20th-century cultural heritage based on the use of innovative materials.</td>
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<td>Cultural heritage as a driver for sustainable growth</td>
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<td>UNIPG (Genova)</td>
<td>Advanced tools for assessing the safety of cultural heritage sites, structures and artefacts against exceptional natural actions, in the earthquake; advanced techniques for the risk mitigation on the use of advanced materials.</td>
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<td>UNIP (Matera)</td>
<td>The studies related to the durability of cementitious materials (in the specific project, against drying and salt diffusion) are in line with the challenge of inclusive, innovative and secure societies.</td>
<td>The studies related to the durability of cementitious materials (in the specific project, against freezing and salt diffusion) are in line with the development of European industrial capabilities (Key Enabling Technologies, KETs) in the field of advanced materials.</td>
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<td>Unit</td>
<td>CALL FOR ENERGY-EFFICIENT BUILDINGS</td>
<td>DISASTER-RESILIENCE: SAFEGUARDING AND SECURING SOCIETY, INCLUDING ADAPTING TO CLIMATE CHANGE</td>
<td>WASTE: A RESOURCE TO RECYCLE, REUSE AND RECOVER RAW MATERIALS</td>
<td>CALL FOR NANOTECHNOLOGIES, ADVANCED MATERIALS, BIOTECHNOLOGY AND PRODUCTION</td>
<td>MITIGATIVE LOW-CARBON ENERGY</td>
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<td>POLIMI (Tagliaferro)</td>
<td>Topology optimization methods to derive innovative solutions regarding the optimal reinforcement of existing structures, in particular historical building, having important impacts the field of the protection of the architectural heritage.</td>
<td>Optimization methods as sustainable solutions at competitive computational costs for industrial applications.</td>
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<td>Cultural heritage as a driver for sustainable growth</td>
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<td>UNIREMAL (Trevisan)</td>
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<td>UNIBO (Gheraero)</td>
<td>Mitigation of the effects of climate change and natural hazards on cultural heritage sites, structures and artefacts taking into account the values they hold for people and respecting their historic and cultural integrity.</td>
<td>The study of the ageing processes of historic masonry structures and their interaction with strengthening techniques based on advanced materials is aligned with Part II - Industrial Leadership.</td>
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<td>Cultural heritage as a driver for sustainable growth</td>
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<td>UNIATLENTE (Zaverina)</td>
<td>Topology optimization methods to derive innovative solutions regarding the optimal reinforcement of existing structures, in particular historical building, having important impacts the field of the protection of the architectural heritage.</td>
<td>Optimization methods as sustainable solutions at competitive computational costs for industrial applications.</td>
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<td>Cultural heritage as a driver for sustainable growth</td>
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TAB.2 Main impact details
### MAIN IMPACT DETAILS

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<tr>
<th>Possible application potentialities</th>
<th>Description</th>
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<td>1)</td>
<td>Production of guidelines and/or technical codes for the structural design under both static and dynamic loadings of civil constructions involving the use of innovative materials.</td>
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<td>2)</td>
<td>Development and testing of prototypes for industrial applications devoted to the seismic protection of both new and existing buildings.</td>
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<td>3)</td>
<td>Definition of design methodologies for strengthening ancient masonry structures by using innovative materials and techniques, with particular reference to monumental and strategic buildings, whose collapse may lead to severe risks for public safety.</td>
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<td>4)</td>
<td>Production of research publications (journal articles, technical reports, conference papers...) and worked-out case studies.</td>
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### Scientific and/or technological impact of the project

| 1) | Assessment of an up-to-date state-of-the-art concerning advanced systems of seismic protection of existing buildings by using innovative materials. |
| 2) | Improvement of existing predictive models of the mechanical behavior of innovative materials. |
| 3) | Development and validation of innovative numerical tools for the analysis of the mechanical behavior of innovative materials at different scales of observation. |
| 4) | Development of integrated numerical simulation codes for the structural analysis and design involving the use of innovative materials. |
| 5) | Development of a deeper knowledge level about future trends in structural retrofitting by using advanced materials and technologies as a suitable alternative to traditional solutions. |
| 6) | Definition of mitigation strategies for historical buildings, through the design of adequate components and the development of specific devices for damage reduction. |

### Social and/or economic impact of the project

| 1) | The proposed research addresses documented societal security needs, regarding the safeguard of human lives, the environment and the cultural heritage. |
| 2) | The research addresses threats to society, since it may deal with the mitigation of the impact of natural and/or man-originated hazards on constructions. |
| 3) | Promotion and dissemination of an increasing social consciousness of the relevance of the scientific research activity in the safety of constructions. |

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**TAB.3 List of the main research institutions involved by the project**
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<th>Geographical area</th>
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<tr>
<td>SCIARIA/Rosati)</td>
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</tr>
<tr>
<td>UNIROMA1 (Rega)</td>
<td>Michigan State University, USA</td>
<td>Federal University of Rio de Janeiro, Brazil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNIROMA3 (Rizzi)</td>
<td>Princeton University, USA; Florida Atlantic University, USA; George Institute of Tecnology, Atlanta, GA</td>
<td>Structures department, National University of Cordoba, Argentina</td>
<td>Department of Civil Engineering International University VNU HCMC Ho Chi Minh City Vietnam;</td>
<td>Technical University of Lisbon, Lisbon, Portugal; Instituto Superior Tecnico, Universidade de Lisboa/Faculdade de Ciencias e Tecnologia, Universidade Nova de Lisboa; Institute fur ALLGEMINE MECHANIK, Aachen, Germany; Laboratoire de Mecanique, Université des Sciences S, Libe, France; Politehnica University of Timisoara Department of Steel Structures and Structural Mechanics, Timisoara, Romania.</td>
<td></td>
</tr>
<tr>
<td>POLIMI (Tallerico)</td>
<td>University of Minnesota, USA</td>
<td>University of Fuzhou, China</td>
<td>Ecole centrale de Lyon, France; Keele University Staffordshire, UK; University Road, Galway, Ireland; Heising-V, Yverdon, Switzerland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNILORE (Taranto)</td>
<td>University of Illinois at Urbana-Champaign, USA</td>
<td></td>
<td>Skyjet company, Italy; Municipal Environment Enterprise (AMR ROMA), Italy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNIBO (Ubertini)</td>
<td>Missouri University of Science and Technology, USA; Northwestern University, USA.</td>
<td></td>
<td>Labortorim de Mecanique et Technologie (LMT)-Cachan dell'Universite Paris-Saclay, France; University of Natural Resources and Life Sciences (BOKU), Vienna, Austria.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNISALENTO (Zavarise)</td>
<td>University of California at Berkeley, USA.</td>
<td></td>
<td>Nagoya University, Japan; Palestinian National Authority, Palestine; University of Hannover, Germany; ILVA, Taranto, Italy; ENSISSAT, Italy; University of Prague, Czech Republic; ENEA, Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy; Queen Mary College, London, UK; Wessex Institute, Southampton, UK; UNESCO.</td>
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</table>
TAB.4 Main impact indicators

<table>
<thead>
<tr>
<th>MAIN IMPACT INDICATORS</th>
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</thead>
<tbody>
<tr>
<td>Total H-index</td>
</tr>
<tr>
<td>Minimum number of industries involved in the project</td>
</tr>
<tr>
<td>Number Conferences with meetings</td>
</tr>
<tr>
<td>Minimum number expected Articles</td>
</tr>
<tr>
<td>Minimum number expected Special Issues</td>
</tr>
<tr>
<td>Number Horizon 2020 objectives involved</td>
</tr>
<tr>
<td>WP</td>
</tr>
<tr>
<td>Tasks</td>
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</tbody>
</table>

**5 – Costs and fundings, for each research unit (automatically calculated)**

<table>
<thead>
<tr>
<th>n°</th>
<th>Associated or principal investigator</th>
<th>Total cost</th>
<th>Co-funding (item A.1)</th>
<th>MIUR funding (other items)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>DI PAOLA Mario</td>
<td>116.019 €</td>
<td>10.142 €</td>
<td>105.877 €</td>
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<tr>
<td>2.</td>
<td>TROVALUSCI Patrizia</td>
<td>49.000 €</td>
<td>9.913 €</td>
<td>39.087 €</td>
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<tr>
<td>3.</td>
<td>MAIORANA Carmelo</td>
<td>49.000 €</td>
<td>9.815 €</td>
<td>39.185 €</td>
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<td>4.</td>
<td>CHIAIA Bernardino</td>
<td>49.000 €</td>
<td>10.000 €</td>
<td>39.000 €</td>
</tr>
<tr>
<td>5.</td>
<td>FEO Luciano</td>
<td>49.000 €</td>
<td>10.000 €</td>
<td>39.000 €</td>
</tr>
<tr>
<td>6.</td>
<td>REGA Giuseppe</td>
<td>49.000 €</td>
<td>10.158 €</td>
<td>38.842 €</td>
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<td>7.</td>
<td>FALSONE Giovanni</td>
<td>49.000 €</td>
<td>10.380 €</td>
<td>38.620 €</td>
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<td>8.</td>
<td>CARPINTERI Andrea</td>
<td>49.000 €</td>
<td>10.857 €</td>
<td>38.143 €</td>
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<td>9.</td>
<td>TALIERCIO Alberto</td>
<td>49.000 €</td>
<td>10.711 €</td>
<td>38.289 €</td>
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<td>10.</td>
<td>GUSELLA Vittorio</td>
<td>49.000 €</td>
<td>9.725 €</td>
<td>39.275 €</td>
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<tr>
<td>11.</td>
<td>BRUNO Domenico</td>
<td>49.000 €</td>
<td>9.840 €</td>
<td>39.160 €</td>
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<tr>
<td>12.</td>
<td>ROSATI Luciano</td>
<td>49.000 €</td>
<td>9.657 €</td>
<td>39.343 €</td>
</tr>
<tr>
<td>13.</td>
<td>MAROTTI DE SCIARRA Francesco</td>
<td>49.000 €</td>
<td>9.986 €</td>
<td>39.014 €</td>
</tr>
<tr>
<td>14.</td>
<td>CECCHI Antonella</td>
<td>49.000 €</td>
<td>9.922 €</td>
<td>39.078 €</td>
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<tr>
<td>15.</td>
<td>ZAVARISE Giorgio</td>
<td>49.000 €</td>
<td>9.282 €</td>
<td>39.718 €</td>
</tr>
<tr>
<td>16.</td>
<td>RIZZI Nicola Luigi</td>
<td>49.500 €</td>
<td>10.000 €</td>
<td>39.500 €</td>
</tr>
<tr>
<td>17.</td>
<td>CADDEMI Salvatore</td>
<td>49.000 €</td>
<td>10.160 €</td>
<td>38.840 €</td>
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<tr>
<td>18.</td>
<td>UBERTINI Francesco</td>
<td>49.000 €</td>
<td>9.878 €</td>
<td>39.122 €</td>
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<tr>
<td>19.</td>
<td>TARANTINO Angelo Marcello</td>
<td>49.000 €</td>
<td>10.000 €</td>
<td>39.000 €</td>
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<tr>
<td>Total</td>
<td></td>
<td>998.519 €</td>
<td>190.426 €</td>
<td>808.093 €</td>
</tr>
</tbody>
</table>

**B.2**

1 – Scientific curriculum of PI (highlighting, for LS and PE fields, of bibliometric indicators related to publications and citations, and, for SH field, of the quality and impact of publications; awards and other honors; degree of success in Italian or international previous projects)

DI PAOLA Mario

PERSONAL WEBPAGE: [https://www.unipa.it/persone/docenti/d/mario.dipaola/](https://www.unipa.it/persone/docenti/d/mario.dipaola/)

RESEARCH GROUP WEBPAGE: [http://www.unipa.it/dipartimenti/dicam](http://www.unipa.it/dipartimenti/dicam)

EMAIL: mario.dipaola@unipa.it
NUMBER OF PUBLICATIONS AND DISSEMINATION
139 Publications in International Journals
H-INDEX 17 ISI Web of Knowledge, 20 SCOPUS

CURRENT ACADEMIC POSITION AND AFFILIATIONS
2013- Head of the PhD Scientific committee in "Civil, Environmental, Aerospace and Materials", Università degli Studi di Palermo
1986- Professor of Structural Engineering, Università degli Studi di Palermo

PROFESSIONAL EXPERIENCE
2009-2012 Head of the Department of Civil, Environmental, Aerospace and of Materials, Università degli Studi di Palermo
2004-2006 President of the aerospace engineering school, Università degli Studi di Palermo
1998-2004 Head of the PhD Scientific committee in "Structural Engineering", Università degli Studi di Palermo
1989-1992 Head of the Department of Structural Engineering and Geotechnics, Università degli Studi di Palermo
1974-1986 Associated Professor of Structural Engineering, Università degli Studi di Palermo
1970-1974 Researcher of Structural Engineering, Università degli Studi di Palermo

EDUCATION
1970-1975 MSc Civil Engineering (5-years program), Università degli Studi Di Palermo, Italy
1965-1970 Diploma (5-years program), Università degli Studi Di Palermo, Italy

COMMITTEE MEMBER OF INTERNATIONAL JOURNALS WITH PEER-REVIEW
2013- Member of Editorial Board of “Advanced Studies in Theoretical Physics”
2007- Editor of “Meccanica dei Materiali e delle Strutture”
2005- Member of Editorial Board of “Probabilistic Engineering Mechanics”
2005- Member of Editorial Board of “International Journal of Nonlinear Mechanics”

COMMITTEES AND PROFESSIONAL ACTIVITIES
2015- Associate member of American Society of Civil Engineers (ASCE)
2015- Member of Engineering Mechanics Institute (EMI)
2008- Head of the Interuniversitary centre of Experimental and theoretical Dynamics (CIDIS)
2002-2010 Member of the directive committee of Theoretical and Applied Mechanics (AIMETA)
1995-2006 Member of council ANIV (National Association of Wind Engineering)
1994-1997 President of the Italian Group of Stochastic Mechanics (AIMETA)
1970- Registered as Civil Engineer
1986- Member of AIMETA (Italian Association of Theoretical and Applied Mechanics)

CURRENT FUNDINGS FOR THE RESEARCH

PAST FUNDINGS FOR THE RESEARCH
2011-2013 "Strutture Leggere Integrate e Modulari per diverse applicazioni incluse le emergenze SLIM” funded by Regione Sicilia
2007-2013 "SIMIT - Costituzione di un sistema integrato di protezione civile italo maltese” funded by CEE
2008 “A physical approach to non-local viscoelasticity and to phase transition: Application to fracture mechanics” funded by PRIN
2004 “Vibrations in Civil Engineering Structures (VINCES)” funded by PRIN
2001 “Safety and Control of masonry bridges” funded by PRIN
2000 "Structural identification and diagnostics: General methods and applications” funded by PRIN
1999 "Identification of dynamical parameters of damaged structures” funded by COFIN
1997 "Structural Stochastic analysis in presence of multivariate processes” funded by COFIN

CONSULTING ACTIVITIES
Structural design of viaducts, dams, buildings:
1991 “Structural design of the Dam of Blufl (29.000.000 mc), Imera river” for Ansaldi – Di Panta, € 68.672.642
1990 “Structural design of Hotel S. Paolo (Palermo)” for Moderna Edilizie S.p.A.
1989 “Structural design of the faculty of Architecture and of Magistero” for Università degli Studi di Palermo
1985 “Structural design of receiver tunnels in Monte Grifone Palermo (90.000 mc)’” for Ferrocemento, € 4.493.352
1983 “Structural design of the purification plant of Athens, psitalia Island, Greece” for Cassina, € 300.000.000
1983 “Structural design of the Post office of Caltanissetta” for SICE S.p.A. – COES S.p.A., € 20.000.000
1982 “Structural design of the purification plant of the Palermo City” for Cogefar Imprese, € 50.000.000
1980 “Structural design of the bridges of Palermo’s bypasses” for Cassina Farsura, € 26.000.000
Retrofit of historical monuments:
2012 “Monitoring of the Passetto Vaticano (Rome, XV century)”
2007 "Retrofit of the S. Teresa Church in Palermo (XVI century)"
1997 "Retrofit of the Chiostro of the Cathedral of Cefalù (XII-th century) made by Federico II di Svevia"
1994 "Retrofit of the Villino Florio in Palermo (made by arch. Basile XIX-th century)"
1991 "Retrofit of the S. Domenico building in Cefalù (XVI-th century)"
1990 "Retrofit of the Carini Castle (XVI century, Carini)"
1989 "Retrofit of the "Osterio Magno of Cefalù" XII-th century, made by Federico II di Svevia"

TEACHING ACTIVITIES
Theory of elasticity – Strength of Materials (Scienza delle Costruzioni), course of Mechanical and Aerospace Engineering, Università degli Studi di Palermo
Structural Vibrations (Dinamica delle Strutture), course of Civil Engineering, Università degli Studi di Palermo
Structural Safety (Sicurezza Strutturale), course of Civil Engineering, Università degli Studi di Palermo
Theory of elasticity – Strength of Materials (Scienza delle Costruzioni), course of Civil Engineering, Università degli Studi di Messina
Structural Safety (Sicurezza Strutturale), course of Civil Engineering, Università degli Studi di Messina
Seismic Engineering (Ingegneria Sismica), course of Civil Engineering, Università degli Studi di Messina
Theory of elasticity – Strength of Materials (Scienza delle Costruzioni), Università Nazionale Somala

RESEARCH TOPICS
Stochastic differential calculus
Analysis of structures exposed to the wind, the earthquake, the stormy sea
Analysis of non-local continuum
Fractional viscoelasticity
Innovative techniques for the mitigation of seismic risk

INVITED PRESENTATIONS AT INTERNATIONAL CONFERENCES AND/OR SCHOOLS (from 2005)
Keynote Lectures
2015 “XXII Congresso - Associazione Italiana di Meccanica Teorica e Applicata”, Genova (Italy)
2013 “Vienna Congress on Recent Advances in Earthquake Engineering and Structural Dynamics, VEESD”, Vienna (Austria)
2012 "International conference: Stochastic Mechanics", Ustica (Italy)
2008 "International Conference on Seismic Engineering, MERCEA", Reggio-Calabria (Italy)
Advanced Lectures
2013 “Fractals and fractional calculus" & “The fractal approach to non-local mechanics" in Università di Bologna
2013 “Complex fractional moments for the characterization of stochastic processes” in Rice University
2013 “Viscoelastic devices for seismic devices, fractional approach” in Università degli Studi di Parma
2013 “Complex fractional moments for the solution of the FPK equation”, in Zhejiang University
2013 “Viscoelasticity and fractional calculus”, in Zhejiang University
2013 “Fractional calculus and viscoelasticity" in University of Oxford
2010 “The fractal approach to non-local mechanics" & "Fractals and fractional calculus” in Università politecnica delle Marche
2010 “The fractal approach to non-local mechanics" & "Fractals and fractional calculus” in Università degli Studi di Pisa
2009 “Engineering Applications of Fractional Calculus” & “Physical-based approach to non-local mechanics” in Università degli Studi di Perugia
2009 “Innovative Techniques for Response Mitigation of Structures under Seismic and Wind Actions” in Università degli Studi di Firenze
2009 “Ergatizing Applications of Fractional Calculus” in Università Mediterranea di Reggio Calabria
2009 “Fractals and Fractional Calculus, Application to non-local continuum” & "Fractals and Fractional Calculus, Waves propagation in non-local continuum” in Università di Torino
2008 “Fractional Calculus in Stochastic Dynamics” in Technical University of Wien
2008 “Analysis of Non-Local Continua by Fractional Calculus” in Università degli Studi Trento
2008 “Non-Local Mechanics via Fractional Calculus” in Università degli Studi di Genova
2008 “Physically-Based Approach to the Mechanics of Non-Local Theory” in Università di Roma
2007 “Fractional Calculus in the study of non-local mechanics” in Università di Torino

ORGANIZATION OF INTERNATIONAL CONFERENCES
2014 “7th International Conference on Fractional Differentiation and its Applications (ICFDA), special session on Stochastic Dynamics and Fractional Calculus” (with Prof. P.D. Spanos), Catania (Italy)
2014 “7th Computational Stochastic Mechanics” (with Prof. P.D. Spanos), Santorini (Greece)
2010 “6th Computational Stochastic Mechanics” (with Prof. P.D. Spanos), Rodos (Greece)
2008 “30th National congress of Wind – Engineering (IN-VENTO)”, Palermo (Italy)
2006 “5th Computational Stochastic Mechanics (with Prof. P.D. Spanos), Rodos (Greece)
2000 “Euromech 413: Stochastic Dynamics of nonlinear mechanical systems”, Palermo (Italy)

INTERNATIONAL AWARDS AND OTHER HONORS
2015 Guest editor of the special issue "Fractional operators in the analysis of mechanical systems under stochastic agencies" for the ASCE-ASME Journal of Risk and Uncertainty In Engineering Systems, Part B: Mechanical Engineering
2013 Visiting Professor of Mechanics in Zhejiang University
1997 “Research prize in the area of Stochastic Dynamics” given by International Association for Structural Safety and Reliability, IASSAR
2 - Scientific curriculum of associated investigators (highlighting, for LS and PE fields, of bibliometric indicators related to publications and citations, and, for SH field, of the quality and impact of publications; awards and other honors)

1. TROVALUSCI Patrizia
PERSONAL WEB-PAGE: http://dsg.uniroma1.it/trovalusci/
RESEARCH GROUP WEB PAGE: https://sites.google.com/a/uniroma1.it/multiscale-and-multiphysics-modelling-for-complex-materials/
Email: Patrizia.trovalusci@uniroma1.it
NUMBER OF PUBLICATIONS AND DISSEMINATION
Int refereed Journals (30), Volumes/Special Issues/Monographs (7), in refereed Books (27), Int Proc (36), Nat Proc (25), other (7)
H index 11 (Scopus), 10(ISI-WOS); Tot Cits 357 (Scopus), 350 (ISI-WOS); Most cited papers: 44, 42, 35 (Scopus)
CURRENT ACADEMIC POSITION AND AFFILIATION
- 2013-present Nat Academic Qualification as Full Professor of 'Solids and Structural Mechanics'
- 2000-present Associate Professor of 'Solids and Structural Mechanics', Sapienza Univ Rome
PROFESSIONAL EXPERIENCE
- 1992-2000 Assistant Professor, Sapienza
- 1989-1992 PhD in 'Structural Architecture', Univ Florence
- 1987-1989 Research Fellow, Dep. Struct Engn Geotech
ACADEMIC ISTITUTIONAL APPOINTMENTS
- 2010-present Coordinator of Bachelor Degree’s Courses: 'Science of Architecture'; 'Techniques of Architecture and Construction'; 'Restoration and Conservation of Monuments'. Sapienza, Univ Rome, School of Architecture
RESEARCH AREAS
Continuum mechanics; non-classical continua; masonry materials and structures; composites; multiscale modelling; molecular theory of elasticity; elastic wave propagation; theory of plasticity and non-standard limit analysis; mathematical programming; non-linear finite element analysis; structural language of architecture
SCIENTIFIC COMMITTEES MEMBERSHIP
- 2016 - Int Conf 'Computational Methods' (ICCM)
- 2015 - Sci Comm 'Nat Ass Solids Structures' (AIMETA)
- 2014 - Board of Directors of 'Centro Ricerca Scienza Tecnica Conservazione Patrimonio Storico-Architettonico' (CISTeC), Sapienza
- 2013 - Sci Comm 'Computational & Structural Mechanics Ass' (CSMA)
- 2013/16 - Sci Comm 'Int Conf Structures & Architecture' (ICSA)
- 2011/09/06 – Exec Comm; Advisory Comm; Sci Comm 'Int. Conf Proc Manufact Advanced Materials' THERMEC
- 2008 - Board of PhD Program in 'Structural Engineering', Sapienza Univ Rome
- 2009-2011 - Faculty Comm 'Development, Communication and Coordination of Cultural Activities’
SCIENTIFIC EVALUATION PANELS
- 2013 - European Research Council (ERC Advanced Grants)
- 2009 - Georgia Nat Science Foundation
- 2000-2006 - Faculty Research Funds Committee
FUNDINGS
EDITORIAL BOARDS
- 2012- J Civil Eng Sci
- 2010- ISRN Mech Eng J
GUEST EDITORSHIP
- Special Issues:
  - P. Trovalusci, B. Schrefler (eds), 'Multiscale Modelling for Materials with Internal Length’, Int J Multiscale Comp Engn, 10(6), 2012
- Books:
ORGANIZATION/CHAIR
- Conference:
Ministero dell'Istruzione dell'Università e della Ricerca

- Minisymposia:
  'Multiscale and Multiphysics Modelling for Complex Materials'
  ° 2016 - MCMC7-ICCM, Berkeley (CA, USA). Invited Coordinator, Key-Note speaker
  ° 2015 - MCMC6-ICCM, Auckland (New Zealand). Invited Coordinator, Key-Note speaker
  ° 2014 - MCMC5-WCCM, Barcelona (Spain). Invited Coordinator
  ° 2012 - MCMC4-ECCOMAS, Wien (Austria). Co-coordinator
  ° 2010 - M2CM2-ECCM, Paris (France). Principal Coordinator, Key-Note speaker
  ° 2009/2006 - MCM/MCM2-THERMEC, Vancouver (Canada); Berlin (Germany). Coordinator
  'On the "Tectonics" in Architecture: between Aesthetics and Ethics'
  ° 2016/13/10 TAAE3/TAAE2/TAAE3-ICSA, Guimarães (Portugal). Invited Coordinator/Co-coordinator
  ° 2010 - ‘Computational multiscale and multifield modelling of composites’ - WCCM/APCOM, Sidney (Australia). Co-coordinator

- Special Sessions:
  ° 2016 - ‘Mechanics of interfaces and evolving microstructures (including phase transformation and recrystallization)’ - EMMC15, Bruxelles, (Belgium). Invited Co-coordinator
  ° 2012 - ‘Multiscale Modelling of Complex Materials’, CISM, Udine (Italy). Co-coordinator, Lecturer

- Presentations:
  ° Keynotes (5):
    ° 'Particulate microcracked composites as multifield continua with “configurational forces”’, 6th Int Conf on 'Computational Methods’ (ICCM2016), Berkeley (CA, USA), 2016 (to hold)
    ° ‘Coarse-graining approaches for particulate composites as micromorphic continua’, 6th Int Conf on 'Computational Methods’ (ICCM2015), Auckland (New Zealand), 2015
    ° Invited Talks (selected):
      ° Particle random composites as micropolar continua: a statistically based multiscale procedure, ° ‘Generalized Continua as Models for Materials with Multi-Scale-Effects or under Multi-Field-Actions’, Magdeburg, Germany, 2014

- Invited Talks (selected):
  ° 'Generalized Continua for discontinuous complex materials with “configurational forces”', 6th Int Conf on 'Computational Methods’ (ICCM2016), Berkeley (CA, USA), 2016 (to hold)

- Minisymposia:
  ° 'Multiscale and Multiphysics Modelling for Complex Materials'
  ° 'Continuum micropolar modelling of discontinuous masonry-like systems’, 5th European Solid Mechanics Conf’, Thessaloniki (Greece), 2003

- Conferences/Lectures (selected):
  ° 'On the “Tectonics” in Architecture: between Aesthetics and Ethics'
  ° 'Multiscale and Multiphysics Modelling for Complex Materials'
  ° 'Computational Mechanics', Paris, 2010
  ° 'Discrete to scale-dependent continua for complex materials. A generalized Voigt approach using the principle of Virtual Power’, Euromech Coll 557, Stuttgart (Germany), 2015

- Special Sessions:
  ° 'Masonry Constructions. Seismic Safety, Conservation', Doctoral School of Engn and Arch, Sapienza. 2015
  ° 'Multiscale Modelling of Complex Materials’, CISM, Udine (Italy). Co-coordinator, Lecturer
  ° 'Masonry Constructions. Seismic Safety, Conservation', Doctoral School of Engn and Arch, Sapienza. Advanced Seminar, 2015
  ° 'Considerazioni sulla modellazione meccanica per la muratura storica’ XX Ann CISTeC, School of Engn, 2015
  ° 'Discrete-to-continuum approaches for complex materials as “non-simple” continua’, Conv ‘Meccanica Computazionale e Meccanica dei Materiali’ (GIMC-GMA), Cassino (Italy), 2014
  ° 'A multiscale-multifield approach to ‘complex’ materials: theoretical modelling and computational results, 18th Conf on ‘Computer Methods in Mechanics’, Zielona-Gora (Poland), 2009
  ° 'Elastic waves in microcracked bodies as multi-field materials’, 5th European Solid Mechanics Conf’, Thessaloniki (Greece), 2003
  ° 'Continuum micropolar modelling of discontinuous masonry-like systems’, 6th Nat Congr on Mechanics, Thessaloniki (Greece), 2001
  ° 'Verso il recupero di un’etica “tettonica” in architettura: la dimensione tecnologica e la dimensione matematica. Nervi e Musmeci due concezioni strutturali a confronto’. Polyt Univ Marche, School of Civil Engn & Arch, Ancona (Italy), 2015
  ° 'The recovery of the ethic of constructions: P. L. Nervi vs. S. Musmeci, two structural conceptions compared’. 1st Int Sym 'Form After Form: On the relentless emergence of new (architectural) forms’. School of Arch, Univ Genoa, 2014
  ° 'Notes on the on the mechanical modeling of historic masonry’, Sapienza Univ Rome, Doctoral School of Engn & Arch, 2009
  ° 'The Structural Conception in Architecture. Reflections on the relations among the art of building, structural mechanics, mathematics and architectural design’. Univ Italy, School of Arch, 2008
  ° 'TEACHING (Sapienza Univ Rome, School of Arch, 1997–present)
2. MAIORANA Carmelo

PERSONAL WEB PAGE:
http://dicea.unipd.it/category/ruoli/personale-docente?key=483299CDC870D01BE6C302CC023FBB24

RESEARCH GROUP WEB PAGE:
http://www.dicea.unipd.it/ricerca/gruppi-di-ricerca/scienza-delle-costruzioni

EMAIL: carmelo.maiorana@dicea.unipd.it

NUMBER OF PUBLICATIONS AND DISSEMINATION:
65 Publications on International Refereed Journals
H-INDEX 6 in ISI Web of Knowledge, 13 in SCOPUS, 806 SCOPUS citations, 186 citations for the most cited paper.

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
2004-present Full Professor of Structural Mechanics (SSD ICAR/08), University of Padua
2011-present Visiting Professor, Ecole Normale Supérieure de Travaux Publics (ENSTP), Yaoundé, Cameroun

PROFESSIONAL EXPERIENCE:
1998-2004 Associate Professor of Structural Mechanics, University of Padua
1983-1998 Researcher of Structural Mechanics, University of Padua
1978/79-1980/81 Recipient of a fellow grant at the Faculty of Engineering, University of Padua

EDUCATION:
1972-1978 Degree in Civil Engineering, University of Padua (23 years old).

COMMITTEE MEMBER OF INTERNATIONAL JOURNALS WITH PEER-REVIEW:
2014-present Member of the Editorial Board of Periodica Polytechnica Civil Engineering (PPCE), Editor of the Civil Engineering Section.

COMMITTEES AND PROFESSIONAL ACTIVITIES (selected):
2012-present Referent of the University of Padua for the collaboration agreement between the Faculty of Engineering and the ENSTP of Yaoundé, Cameroun
2005-present Member of the Academic Board of the PhD School in Civil and Environmental Engineering Sciences, University of Padua
2011-2015 Head of the Department of Civil, Environmental and Architectural Engineering (Dept. ICEA), University of Padua
2011-2015 Member of the Academic Senate as a representative of the Heads of the Department for the Macro area n. 1 of Mathematics, Physical Sciences, of Information and Communication, Engineering and Earth Sciences
2011-2012 President of the examination committee for the admission to the PhD School in Civil and Environmental Engineering Sciences, University of Padua (XXVII cycle)
2003-2009 Head of the Department of Structural and Transportation Engineering, University of Padua
2008-2010 Head of the Inter-Ateneum School of Specialisation for Teachers of Secondary School (SSIS) of Veneto Region

CURRENT FUNDINGS FOR THE RESEARCH:
Fundings from private companies.

PAST FUNDINGS FOR THE RESEARCH (selection):
2011-2013 Project CARITN: Solar thermodynamic (Trento)
2009-2011 Project INFN: SPES (Padua)
2010-2012 Project ITER, RFX (Padua)
2007-2010 Project MIUR: ELIOSLAB (Rome)
2003-2006 European project Growth: UPTUN (Padua)
2002-2004 European project Euratom: MAECENAS (Udine)
1995-1998 European project Brite Euram III: HITECO (Padua)

CONSULTING ACTIVITIES (selection):
2010-2011 ITER Project - C. Majorana, V. Salomoni, P. Sonato
2009 Feasibility study for the construction of a tramway on the "Ponte della Libertà" of Venice – C. Majorana, A. Novarin, B. Pomaro

TEACHING ACTIVITIES (selection):
• From the academic year 2013/14 is professor of Structural Mechanics (Scienza delle Costruzioni), Civil Engineering, University of Padua
• From the academic year 2012/13 is professor of Nonlinear Structural Mechanics (Teoria delle Strutture), Civil Engineering, University of Padua
• He was professor of Structural Dynamics (Dinamica delle Strutture), Civil Engineering, University of Padua
• He was professor of Strength of Materials and Fracture Mechanics (Meccanica della Frattura e dei Materiali), Civil Engineering, University of Padua
RESEARCH TOPICS (selection):
- Geometrically and material non linear problems; instability, dynamics
- Multidisciplinary analysis of thermonuclear fusion experimental machines
- Multidisciplinary analysis of very large telescopes, rotating buildings for telescopes and structural elements employed in astrophysical and aerospace engineering
- Fully coupled chemo-thermo-hydro-mechanical analysis of structures and structural elements subjected to high temperature conditions
- Non linear problems of soil mechanics and subsidence; geothermal problems
- Heat and mass coupled transport and mechanical behaviour of concrete and geomaterials
- Mechanics of unsaturated porous materials with damage effects
- Generation of finite elements used in the analysis of steel and concrete structures, integration schemes

PATENTS

INVITED PRESENTATIONS AT INTERNATIONAL CONFERENCES AND/OR SCHOOLS (selected from 2005)
2015 Opening Lecture, “Computational issues in multifield, multiscale, 3D structural engineering”, CC2015
2011 Invited Lecture, “Concrete as a multiphase material in biological shields against nuclear radiation”, CC2011
2010 Keynote Paper, “Contact behaviour of elastoplastic damaged shells undergoing finite displacements and rotations”, ICCES 2010
2009 Keynote Paper, “Analysis of concrete spalling process as a finite strain problem”, 1st International Workshop on Concrete Spalling due to Fire Exposure
2009 Keynote Lecture, “Upgrading Safety in Tunnels Against Fire Hazard, 4th Int. Conf. on Protection of Structures against Hazards
2008 Keynote Lecture, “Finite strain modelling of concrete at high temperatures”, European Seminar on Coupled Problems, Institute of Thermomechanics of the Academy of Science of Czech Republic
2006 Keynote Lecture, “Protection of Tunnels against Fire Hazard”, 3rd Int. Conf. on Protection of Structures against Hazards

ORGANIZATION OF INTERNATIONAL CONFERENCES (selection)
2010 Co-Chairman, Newcon International Conference, London
2009 Co-Chairman, Concrete Solutions, Padua
2008 Co-General Secretary WCCM8 – ECCOMASS, Venice, 2008.
2006 Chairman 3rd Int. Conf. Protection of Structures against Hazards, Univ. Padua/Venice

SCIENTIFIC COMMITTEE OF INTERNATIONAL CONFERENCES (selected from 2006)
2014 CST2014, Naples, Italy
2013 CC2013, Cagliari, Sardinia, Italy
2013 Coupled Problems 2013, Ibiza
2012 CST2012 & ECT2012, Dubrovnik, Croatia
2012 IABMAS 2012, 6th International Conference on Bridge Maintenance, Safety and Management, Lake Maggiore, Italy
2011 CC2011, Chania, Greece
2011 Coupled Problems 2011, Kos Island, Greece
2011 Concrete Solutions, 4th Int. Conference on Concrete Repair, Dresden, Germany
2010 CST2010, Valencia, Spain
2009 Concrete Solutions, 3rd Int. Conf. on Concrete Repair, Padua, Italy
2009 Coupled Problems 2009, Ischia, Italy.
2009 12th International Conference on Civil, Structural and Environmental Engineering Computing, Funchal, Madeira Island.
2009 Concrete Spalling due to Fire Exposure, 1st Int. Workshop, Leipzig, Germany
2008 WCCM8, Venice Lido, Italy
2008 9th International Conference on Computational Structures Technology, Athens, Greece
2008 Concreep VIII, Ise-Shima, Japan
2007 Coupled Problems 2007, Santa Eulalia, Ibiza, Spain
2007 11th International Conference on Civil, Structural and Environmental Engineering Computing, St. Julians, Malta
2007 Fib Workshop “Fire design of concrete structures – from materials modelling to structural performance”, University of Coimbra, Portugal
2006 Concrete Solutions, 2nd Int. Conf. on Concrete Repair, St-Malo, France
2006 3rd Int. Conf. on Protection of Structures against Hazards, Venice, Italy

INTERNATIONAL AWARDS AND OTHER HONORS:
2014 EMERALD HIGHLY COMMENDED PAPER 2014: “Thermo-hygro-mechanical meso-scale analysis of concrete as a viscoelastic-damaged material
2013 EMERALD HIGHLY COMMENDED PAPER 2012: “Three-dimensional modelling of bond behaviour between concrete and FRP reinforcement”
2011 IMACS AWARD 2011 - 8th Imacs 2011 most successful papers award: “An approach for modeling concrete spalling in finite strains”
2008 EMERALD HIGHLY COMMENDED PAPER 2008: "Mechanical and durability behaviour of growing concrete structures”

3. CHIAIA Bernardino
PERSONAL WEBPAGE
http://staff.polito.it/bernardino.chiaia/
EMAIL
bernardino.chiaia@polito.it

NUMBER OF PUBLICATIONS AND DISSEMINATION:
75 Publications on International Refereed Journals
H-INDEX 20 in ISI Web of Knowledge, 22 in SCOPUS, 1435 SCOPUS citations, 345 citations for the most cited paper.

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
2002-present - Full Professor of Structural Mechanics (SSD ICAR/08), Politecnico di Torino
2009-present - Dean of the Faculty of Engineering, International Telematic University Uninettuno, Rome
2015-present - Vice-rector for International Affairs, Politecnico di Torino

PAST PROFESSIONAL EXPERIENCE
March-October 1995: visiting researcher at the Dept. of Civil Engineering, Technical University of Delft.
1995-1998: Assistant Professor of Structural Engineering at Politecnico di Torino.
1998-2001: Associate Professor of Structural Engineering at Politecnico di Torino.
2003-2005: Deputy Dean at the Faculty of Engineering at Politecnico di Torino.
2005-2012 Vice-rector of Politecnico di Torino, responsible for Educational Programs and Faculty Activities.
2011-2015: Member of the Board of the Italian Institute of Geophysics and Vulcanology (INGV)

EDUCATION
1985 – 1991 - Master degree in Civil Engineering, University of Bari (score 110/110 cum laude)

EDITORIAL BOARD MEMBERSHIPS (INTERNATIONAL JOURNALS WITH PEER-REVIEW)
2010 – present: member of the Editorial Board of "International Journal of Forensic Engineering", Interscience Publisher.
2015 – present: member of the Editorial Board of "Heliyon", Elsevier.

COMMITTEES AND EVALUATOR ACTIVITY (selected)
1995-2004 Member of the RILEM Commission on Quasi-Brittle Failure (chaired by Prof. Z.P. Bazant).
2005-2011 Member of the Board of Politecnico di Torino.
2010-2015 Member of the Politecnico di Torino Evaluation Unit.
2007-2010 Coordinator of the Committee for the Creation of the Italian Technical University (UESTP) in Pakistan, sponsored by the Pakistani Government and by the Italian Ministry of Foreign Affairs.
2011-2015 Member of the Board of the Italian Institute of Geophysics and Volcanology (INGV) - http://www.ingv.it/
2005-present: Member of the “Evaluator-Referee Panel” for CIVR (Italian Committee For Research Evaluation) - Panel 08 and 09 (Civil and Industrial Engineering).
2007-present : Member of the Expert Panel of CRUI for the assignement of funds in the framework of the project TRIS (Research Technicians for Southern Italy) funded by CIPE.
2011-present: Expert evaluator of the Italian Minister of University and Research (MIUR) for the Cluster, Start-up and PON projects.
2014-present: Expert evaluator for the assessment of industrial project funded by Regione Lazio, Emilia Romagna, Puglia and Sardegna.
PAST RESEARCH FUNDING (SELECTED)

2000 Coordinator of a Research Project, funded by the Italian Research Council (Agenzia 2000), on "Extreme pressure conditions at rough interfaces: role of stress singularities and effects on thermal conductance".

2003 Co-director of a Biomechanics Research Project "Lung mechanics and implications in artificial ventilation" (resp. Prof. Vito Marco Ranieri, Faculty of Medicine, University of Torino), funded by Piedmont Region, 2003. Funded Euro 30.000.


2005 Coordinator of the Internationalization Project by MIUR (2004-2006) "RICE: Research and Innovation in Civil Engineering", in partnership with Massachussets Institute of Technology, Georgia University of Technology, Imperial College, Delft Technical University, Nagoya University and Tohoku University. Funded Euro 38.500.

2006 Coordinator of a Research Project funded by Baldassini & Tognozzi Spa on the topic of ductility of fiber-reinforced concrete. Funded Euro 14.000.

2006 Coordinator of a Research Project in collaboration with prof. Paal Bergan, head of the Research Dept. of Det Norske Veritas (Oslo, NO) on the application to civil constructions of sandwich panels from naval engineering.


2008 Coordinator of a Research Project funded by Fondazione CRT (Cassa di Risparmio di Torino) in the framework of "Progetto Alfieri" on the topic of snow avalanche effects and ice collapses in high mountain regions. Funded Euro 40.000.

2010 Coordinator, for the Politecnico di Torino, of the research project INNOVANCE, funded by the Economic Development Ministry (Industry Notice 2015 - Energetic Efficiency), in collaboration with the National Association of House-Builders (ANCE). Funded Euro 950.000.

2011 Coordinator of the Research Unit of Politecnico di Torino in the Research Program "Building Information Modelling for Cultural Heritage" (PRIN 2011). Funded Euro 100.000.

2013 Coordinator of a Research Project funded by Ecotyre Consortium on the use of end-of-life tyre rubber into structural concrete. Funded Euro 70.000.

CURRENT RESEARCH FUNDING

2014 Coordinator of a Research Project funded by Regione Valle d’Aosta on rock fall effects on structures. Funded Euro 100.000.

2015 Coordinator of a Research Project funded by Fondazione CRT (Cassa di Risparmio di Torino) on the Interoperability Management of Seismic Vulnerability at the Urban Scale. Funded Euro 30.000.

2015 Coordinator of a Research Project funded by RFI on rock fall effects on structural monitoring of railway bridges. Funded Euro 90.000.

RESEARCH TOPICS

Author of more than 140 scientific publications on subjects of Structural Engineering, Materials Engineering and Fracture Mechanics. In particular, 45 papers have been published on the most important Journals of the field. The principal topics investigated are:

a) damage and fracture of structural materials and rocks;
b) influence of concrete microstructure on its mechanical properties;
c) assessment of strength, ductility and robustness of structures;
d) mechanics of structures: size effects, safety and collapse of large engineering structures;
e) contact mechanics, tribology, adhesion and friction between rough surfaces;
f) penetration mechanics in civil and oil applications;
g) demolition of civil and industrial buildings, cutting of stones and masonry;
h) biomechanics (soft tissues, skin elasticity and lung mechanics);

TEACHING ACTIVITY

Full professor at the Faculty of Engineering of Politecnico di Torino. He currently teaches the Corse "Structural mechanics" for the Master Degree of Civil Engineering and the Course "Advanced Structural Mechanics" for the Master Degree of Environmental Engineering. Since 2007 he teaches the Corse "Advanced Structures" in the Faculty of Architecture.

He has supervised more than 50 Master theses in the Faculty of Engineering, also collaborating at the Faculty of Architecture. Author of the video-course "Materials and Structural Mechanics" for Consorzio Nettuno, Roma (Italy).

Within the frame of his research interests, supervises Master and PhD Theses in collaboration with primary foreign Institutions and Industries, such as DNV in Oslo (NO) NTU in Trondheim (NO), TU in Delft (NL), Imperial College in London (UK) and MIT in Cambridge (USA).

CONSULTING ACTIVITIES
In 2003 he was one of the founders of the consultancy firm ARCOS Engineering in Torino (Italy). Consulting activity includes:
1) analysis, design and validation of special structures (e.g. anti-seismic)
2) nonlinear and dynamic analysis of structures (vibration analyses)
3) fibre-reinforced concrete structures (e.g. tunnel linings)
4) safety, damage and progressive collapse of structures
5) demolition of structures
6) monitoring and rehabilitation of structures
7) land engineering, protection structures (e.g. dams, snow avalanche protection)
8) forensic engineering - consultancy for Courts of Justice
9) due-diligence and special certifications
10) advanced numerical modelling (complex systems and chaotic nonlinear systems).

In 2006 he was appointed as Certificator of structures and infrastructures by the Italian Railway Company (RFI). From 2010 he is member of the Arbitrator Register of the Chamber of Arbitration for Public Works

INTERNATIONAL AWARDS AND OTHER HONORS
1991 - Winner of the prize "Ing. Vito Sardone", for the best Master thesis in Civil Engineering by the University of Bari
2004 – 2014 Curriculum published on "Who is who in Science and Engineering"
2012 - Awarded of the prize "ACI Wason Medal for Material Research" by the American Concrete Institute (ACI)
2014 - Nominated “Honorary Professor” at the Henan Univ. of Technology di Zhengzhou, China.

4. FEO Luciano
CURRICULUM VITAE OF LUCIANO FEO

PERSONAL WEBSITE: http://www.unisa.it/docenti/lucianofeo/en/index
RESEARCH GROUP WEBSITE: http://www.unisa.it/dipartimenti/diciv/gruppi_di_ricerca/ingegneriastrutturale/en/index
EMAIL: l.feo@unisa.it

PUBLICATIONS ON INTERNATIONAL JOURNALS: 56
H-INDEX ON SCOPUS: 19
H-INDEX ON ISI Web of Knowledge: 19

ACADEMIC POSITIONS
2002-present: Associate Professor of Structural Mechanics at the Department of Civil Engineering of the University of Salerno.
2001-2002: Assistant Professor of Structural Mechanics at the Department of Civil Engineering of the University of Salerno.

EDUCATION
1994-1997: Ph.D., Structural Engineering, University of Naples "Federico II".
1984-1990: Master of Science (M.S.), Civil and Environmental Engineering, University of Salerno.

EDITOR OF PEER-REVIEW INTERNATIONAL JOURNALS
2010-present: European Editor of Composites Part B: Engineering.
2013-present: Editor-In-Chief of Section Board for “Advanced Composites” of the International Journal Materials.

GUEST EDITOR OF PEER-REVIEW INTERNATIONAL JOURNALS
2015-present: Guest Co-Editor of the Special Issue of the International Journal Technologies, Nanotechnology in Construction.
2015-present: Guest Co-Editor of the Special Issue of the International Journal Technologies, Bolted and Bonded Joints in Fibre Reinforced Polymer Constructions.
2010-present: Guest Editor of the Special Issue of the International Journal Materials, Innovative Materials in Civil Constructions.
2010-present: Guest Co-Editor of the Special Issue of the International Journal Materials, Green Materials and Construction.

EDITORIAL BOARD MEMBERSHIP OF PEER-REVIEW INTERNATIONAL JOURNALS
2012-present: Journal Technologies.
2012-present: Progettazione Sismica.
2010-present: Materials.
2010-present: Current Nanoscience.
2002-present Composites Part B: Engineering.
2002-present: Composites Theory and Practice.
ADMINISTRATIVE POSITIONS AND SCIENTIFIC COMMITTEES
2015-present: Director of the Structural Engineering Test Hall of the Department of Civil Engineering, University of Salerno.
2011-present: Vice Director of the Department of Civil Engineering, University of Salerno.
2000-present: Member of the following Research Center:
• International Institute for FRP in Construction, IIFC Administrative Centre.
• International Community for Composites Engineering.
• ACI Italy Chapter.
• European Mechanics Society.

RESEARCH PROJECTS
2014-2016: Research Project ReLUIS-DPC 2014-2016 (Civil Defense Department of the Italian Prime Minister’s Office), "Impiego di profili FRP per la realizzazione di strutture a carattere provvisoriale per applicazioni di interesse della Protezione Civile".
2010-2013: Research Project ReLUIS-DPC 2010-2013 (Civil Defense Department of the Italian Prime Minister’s Office), "Giunti bullonati ed incollati".
2010-2012: Italian National Relevant Research Project PRIN 2008, "Giunti bullonati in strutture civili di materiale composito fibrorinforzato".

SCIENTIFIC CONSULTING

TEACHING
Structural Mechanics.
Theory of Structures.
Experimental Behavior and Testing of Civil Structures.

RESEARCH SUBJECTS
Mechanical behavior of thin-walled elastic beams of open cross-section.
Structural bearings.
Experimental analysis of materials and structures.
Stability and post-critical behavior of elastic composite structures.
Structural strengthening of existing structures with composite materials.
Numerical and experimental analysis of FRP composites bonded and bolted joints for civil engineering constructions.

INVITED LECTURES
On the creep behaviour of reinforced concrete structures strengthened with FRP, International Conference on Composites/Nano Engineering (ICCE/11), Hilton Head Island, South Carolina (USA), 2004 – Distinguished Lecture.
Advanced composites as strengthening materials for civil constructions: state of the art and modern code developments in Italy, International Conference on Composites/Nano Engineering (ICCE/14), Boulder, Colorado (USA), 2006 – Keynote Lecture.
Mechanical Properties of Recycled PET Fiber Reinforced Concrete, International Conference on Composites/Nano Engineering (ICCE/17), Honolulu, Hawaii (USA), 2009 – Invited Lecture.
Stress Analysis of Bolted Joints between FRP Pultruded Profiles, International Conference on Composites/Nano Engineering (ICCE/17), Honolulu, Hawaii (USA), 2009 – Invited Lecture.
A numerical analysis on the effects of washer size on the pin-bear bearing failure load of glass fibre polymer laminates, International Conference on Composites/Nano Engineering (ICCE/18), Anchorage, Alaska (USA), 2010 – Invited Lecture.
Correlation between mechanical properties and composite materials structure, Bucarest, Romania, 2014,
Invited Lecture.
Nonlocal Effects in Composites, 18th International Conference on Composite Structures (ICCS/18), University of Lisbona, 2015 - Plenary Lecture

MEMBER OF ORGANIZING COMMITTEE OF INTERNATIONAL CONFERENCES (since 2006)
ICCE/14, Boulder(USA), 2006.
ICCE/15, Hainan (Cina), 2007.
ICCE/16, Kunming (Cina), 2008.
ICCE/17, Isole Hawaii (USA), 2009.
ICCE/18, Anchorage (USA), 2010.
ICCE/19, Shanghai, (Cina), 2011.
ICCE/20, Pechino, (Cina), 2012.
ICCE/21, Tenerife, (Spagna), 2013.
ICCE/22, Malta, (Spagna), 2014.
ICCE/23, Chengdu, (Cina), 2015.

MEMBER OF SCIENTIFIC COMMITTEE OF INTERNATIONAL CONFERENCES (since 2006)
IECC/06 (6th International Engineering and Construction Conference “Advances in Affordable Housing & Green Construction”), Cairo (Egitto), 2010.
7th International Engineering and Construction Conference, Brisbane, Australia, 2012.
7th International Engineering and Construction Conference, Brisbane, Australia, 2012.
17th International Conference on Composite Structures (ICCS17), University of Porto, 2013.
18th International Conference on Composite Structures (ICCS18), University of Lisbona, 2015.
10th International Conference on Composite Science and Technology (ICCST10), University of Porto, 2015.

INTERNATIONAL HONORS AND AWARDS
“Most Cited Paper Award” from Elsevier for papers published on Composites Part B: Engineering since 2010, for the paper “Bond-Slip Relations for PBO-FRCM Materials Externally Bonded to Concrete”
“Most Cited Paper Award” from Elsevier for papers published on Composites Part B: Engineering since 2010, for the paper “Experimental analysis on bond between PBO-FRCM strengthening materials and concrete”.
“Highly Cited Paper Award” from ISI WEB OF KNOWLEDGE for the paper “Experimental analysis on bond between PBO-FRCM strengthening materials and concrete”.

5. REGA Giuseppe
WEB-PAGE: https://www.researchgate.net/profile/Giuseppe.REGA/stats
EMAIL: giuseppe.rega@uniroma1.it

NUMBER OF PUBLICATIONS
128 Papers in 47 different Archival Journals (+5 submitted)
63 Book and Edited Volume Chapters
94 Refereed Conference Proceedings Papers
92 Conference Abstracts/Extended Abstracts
3 Edited Volumes (Springer)
7 Edited Special Issues in Archival Journals (Nonlinear Dynamics,Meccanica,Chaos Solitons & Fractals,Philosophical Transactions of Royal Society,Chaos).

H-INDEX/CITATIONS
Scopus: h-i:28 Citations: 2120 Average Citations/Item: 13,09
ISI Web of Knowledge: h-i:25 Citations: 1634 Average Citations/Item: 11,84
Google Scholar: h-i:33 Citations: 3192

CURRENT ACADEMIC AFFILIATION
1995- Professor of Solid and Structural Mechanics (SSD ICAR/08),Sapienza University of Rome

MAJOR ACADEMIC AND PROFESSIONAL SERVICES
1987-1992 Head, Department of Structures,Water and Soil Engineering,University of L’Aquila
1992 Chairman,Board of Department Heads,University of L’Aquila
Ministero dell'Istruzione dell'Università e della Ricerca

1992-2002 Member and Chairman, National Secretariat, Professors of Solid and Structural Mechanics
1998-2008 Chairman, Division of Structural Mechanics at Faculty of Architecture, Department of Structural and Geotechnical Engineering, University of Rome La Sapienza
1998-2012 Member, National Committee for Air and Land Cableways, Ministry of Infrastructures and Transportation
2003-2011 Chairman, Master Course in Architecture (Structural Design and Rehabilitation)
2003-2013 Chairman, Ph.D. Program in Structural Engineering, University of Rome La Sapienza
2006-2009 President, AIMETA (Italian Association of Theoretical and Applied Mechanics)
2009-2013 Director, Doctoral School Civil Engineering and Architecture, Sapienza University of Rome

EDUCATION
1970 Laurea, Civil Engineering, University of Rome

EVALUATION COMMITTEES
2007-2015 Reviewer/Expert for CISM, USA-Israel Binational Science Foundation, PRIN, VQR, Polish Academy of Science, Khalifa University Research Program, ETH Zurich, UCD Ireland

EDITORIAL SERVICES
Editor-in-Chief
1998-2004 Meccanica
Associate Editor
1996-2009 Chaos Solitons & Fractals
2003-2015 Mathematical Problems in Engineering
2005-2011 ASME Journal of Computational and Nonlinear Dynamics
2014-2016 Journal of Vibration and Control

Editorial/Advisory Boards Memberships
1991-1995 Chaos Solitons & Fractals
1994- Nonlinear Dynamics
1995-2013 Journal of Vibration and Control
2000-2012 International Journal of Nonlinear Sciences and Numerical Simulation
2013- International Journal of Dynamics and Control
2013- Prikladnaya Matematika i Mekhanika (PMM)-Journal of Applied Mathematics and Mechanics

AWARDS/HONORS
2006 11th Conference on Nonlinear Vibrations, Stability, and Dynamics of Structures, In honor of Giuseppe Rega on the occasion of his 60th Birthday, Virginia Tech
2007 Nonlinear Dynamics, No. 1-3, 2007, Special Issue on "Recent Advances in Nonlinear Dynamics of Mechanical Systems". In honor of 60th birthday of Giuseppe Rega

SCIENTIFIC ACTIVITY IN INTERNATIONAL SOCIETIES
1992-2002, 2009-2013 Member ENOCC (European Nonlinear Oscillations Conference Committee), EUROMECH
2003- Advisory Board Member, Centre for Applied Dynamics Research, University of Aberdeen, U.K.
2007-2014 Member, Nonlinear Sciences Commission of Lublin Branch of Polish Academy of Sciences
2010- Italian Representative, IUTAM General Assembly
2010-2013 International Advisory Board Member, Centre of Excellence for Modern Composites Applied in Aerospace and Surface Transport Infrastructures, Lublin University of Technology, Poland
2013-2018 Chairman ENOCC (European Nonlinear Oscillations Conference Committee), EUROMECH
2014- Member (AIMETA Representative), Scientific Council of CISM, Udine, Italy

CONFERENCES/MINISYMPOSIA/COURSES ORGANIZED/CHAIRIED
1992 International Workshop Bifurcation and Chaos in Mechanical Systems, L'Aquila, Italy
1994 EUROMECH Colloquium 325 Bifurcation and Chaos in Solid and Structural Dynamics, L'Aquila, Italy (with F. Pfeiffer)
2000 Minisymposium on Nonlinear Dynamics, 4th European Solid Mechanics Conference, Metz, France
2001 Minisymposium on Nonlinear Dynamics of Civil Engineering Systems, EUROMECH Colloquium 425 on Nonlinear Dynamics, Control and Condition Monitoring, Aberdeen, U.K.
2003 IUTAM Symposium on Chaotic Dynamics and Control of Systems and Processes in Mechanics, Rome, Italy (with F. Vestrioni)
2003 Minisymposium on Control of Nonlinear and Chaotic Systems, IMA Conference on Bifurcations: The Use and Control of Chaos, Southampton, U.K.
2004 Prenominated Session on Chaos in Fluid and Solid Mechanics, XXIth International Congress of Theoretical and Applied Mechanics, Warsaw, Poland (with I. Mezić)
2005 Symposium on Nonlinear Vibrations and Control of Structures, 20th ASME Biennial Conference on Vibration and Noise, Long Beach, CA (with W. Lacarbonara and H. Yabuno)
2006 Discussion Sessions, 2nd Int. Conf. on Nonlinear Normal Modes and Localization in Vibrating Systems, Samos, Greece (with E. Dowell)
2008 Symposium on System Engineering and Nonlinear Dynamics, Italian-Israeli Forum on Science and Technology, Tel Aviv, Israel
2009 EUROMECH Colloquium 503 Nonlinear Normal Modes, Dimension Reduction and Localization in Vibrating Systems,
Ministero dell'Istruzione dell'Università e della Ricerca

FALSONE Giovanni

Systems, Frascati, Italy (with A. Vakakis)
2010 Minisymposium on Instability Phenomena in Materials and Structures, PACAM XI (11th Pan-American Congress of Applied Mechanics), Iguacu Falls, Brazil (with R. Rosas e Silva, P.B. Goncalves, C.E.N. Mazzilli, G.H. Paulino)
2011 7th EUROMECH Nonlinear Dynamics Conference (ENOC 2011), Rome, Italy
2012 4th International Conference on Localization, Energy Transfer and Nonlinear Normal Modes in Mechanics and Physics, Haifa, Israel (co-chairman, with O. Gendelman)
2014 Symposium on Dynamics, 3rd International Conference on Recent Advances in Nonlinear Mechanics, Harbin, China (with C. Liu)
2016 CISM-AIMETA Advanced School on Global Nonlinear Dynamics for Engineering Design and System Safety, Udine, Italy (with S. Lenci)
2016 Minisymposium Nonlinear Dynamics in Engineering Systems, XXIVth International Congress of Theoretical and Applied Mechanics, Montréal, Canada (with D. van Campen)

CONFERENCE SCIENTIFIC/STEERING BOARD/COMMITTEE MEMBERSHIP: nearly 50 Conferences

PLENARY/KEYNOTE LECTURES
1996 2nd European Nonlinear Oscillations Conference, Prague, Czech Republic
1999 5th Conference on Dynamical Systems Theory and Applications, Lodz, Poland
2000 3rd International Conference on Nonlinear Dynamics, Chaos, Control and their Applications to Engineering Sciences, Campos do Jordao, Brazil
2001 XXIII Yugoslav Congress of Theoretical and Applied Mechanics, Belgrade, Yugoslavia
2003 6th International Symposium on Nonlinear Mechanics "Nonlinear Sciences and Applications", Nis, Serbia-Montenegro
2004 Minisymposium on Integrity of Dynamical Systems, 4th World Congress of Nonlinear Analysts, Orlando, FL
2005 Symposium on Dynamics, IMA Conference Recent Advances in Nonlinear Mechanics, Aberdeen, U.K.
2006 Symposium on Integrity of Dynamical Systems, 16th European Conference of Fracture, Alexandroupolis, Greece
2007 5th International Conference on Nonlinear Mechanics (ICNM-V), Shanghai, China
2009 International Conference Chaotic Modeling and Simulation, Chania, Crete, Greece
2009 2nd International Conference on Recent Advances in Nonlinear Mechanics, Kuala Lumpur, Malaysia
2010 APM 2010 Advanced Problems in Mechanics, International Summer School-Conference, St. Petersburg, Russia
2011 4th International Conference on Experimental Vibration Analysis for Civil Engineering Structures, Varenna, Italy
2012 XXIII International Congress of Theoretical and Applied Mechanics, Beijing, China
2013 11th Biennial International Conference on Vibration Problems, Lisbon, Portugal
2014 International Conference on Structural Nonlinear Dynamics and Diagnosis, Agadir, Morocco
2015 International Conference on Shells, Plates and Beams, Bologna, Italy
2015 12th Biennial International Conference on Vibration Problems, Guwahati, India

VISITING PROFESSOR
2000 University of Illinois at Urbana-Champaign, USA
2007-13 (several months) Lublin University of Technology, Poland

LECTURES/SEMINARS: at nearly 30 universities/institutions

LECTURES AT SHORT COURSES
1998 Mathematisches Forschungsinstitut Oberwolfach
2002, 2004 Summer School Advanced Problems in Mechanics, St. Petersburg
2008-09 Marie Curie-SICON TC2, TC4, CF, at TU Vienna, ENTEPE Lyon, Sapienza
2016 Int.School-Conference Nonlinear Dynamics of Machines, Russian Academy of Sciences, Moscow
2016 CISM-AIMETA Advanced School Global Nonlinear Dynamics for Engineering Design and System Safety, Udine, Italy

INTERNATIONAL RESEARCH PROJECTS (a recent selection)
2005-2009 Marie Curie Host Fellowships for Transfer of Knowledge, Lublin University of Technology, Head of Sapienza Partner Team
2010-2013 Centre of Excellence for Modern Composites Applied in Aerospace and Surface Transport Infrastructures, Lublin University of Technology 7th FP, Head of Sapienza Partner Team

CURRENT RESEARCH INTERESTS
Cable dynamics; Nonlinear oscillations in applied mechanics and structural dynamics; Bifurcation and chaos in nonlinear dynamics; Control of oscillations and chaos; Reduced-order modeling in solid and structural mechanics; Dynamic integrity; Wave propagation; Smart materials; Micro- and nano-mechanics; Structural architecture; Thermomechanical problems.

6. FALSONE Giovanni

MIUR - BANDO 2015
PERSONAL WEB PAGE:
https://www.researchgate.net/profile/G_Falsone
RESEARCH GROUP WEB PAGE:
http://www.unime.it/dipartimenti/ingegneria
EMAIL: gfalsone@unime.it.

NUMBER OF PUBLICATIONS AND DISSEMINATION:
53 Publications on International Refereed Journals
H-INDEX 12 in ISI Web of Knowledge and 12 in SCOPUS.

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
2003-present Full Professor of Structural Mechanics (SSD ICAR/08), University of Messina.

PROFESSIONAL EXPERIENCE:
1998-2003 Associate Professor of Structural Mechanics, University of Messina.

EDUCATION:
1981-1987 Degree in Civil Engineering cum laude, University of Palermo.

COMMITTEE MEMBER OF INTERNATIONAL JOURNALS WITH PEER-REVIEW:
2015-present Member of the Editorial Board of Mathematical Problems in Engineering (Hindawi PC)

COMMITTEES AND PROFESSIONAL ACTIVITIES (selected):
2013-present Member of the Academic Board of the PhD School Engineering and Chemistry of Materials and of Constructions, University of Messina.
2009-2012 Head of the Department of Civil Engineering, University of Messina.
2001-2009 Head (for the Technological Address) of the Sicilian School of Specialization for Teachers of Secondary School of Sicilian Region (SISSIS).
2005-2007 Head of the Committee of the SD 08 Area, University of Messina.
2002-2004 Head of the Council of Civil Engineering Degree Course, University of Messina.

PAST FUNDINGS FOR THE RESEARCH (selection):
2008-2009 Local Scientific Referent for PRIN "Stochastic dynamics of slender structure under the wind action".
2004-2005 Local Scientific Referent for PRIN "Stochastic characterization of masonry structures and their analysis".

CONSULTING ACTIVITIES (selection):
2002-present Scientific Referent of numerous consulting researches for public and private companies principally devoted to the seismic reliability of structures.

TEACHING ACTIVITIES (selection):
• Structural Mechanics (Scienza delle Costruzioni), Civil Engineering Degree.
• Structural Mechanics (Scienza delle Costruzioni), Industrial Engineering Degree.
• Construction Reliability (Sicurezza e Affidabilità delle Costruzioni), Civil Engineering post-Degree.
• Computational Structure Mechanics (Meccanica Computazionale delle Strutture), Civil Engineering post-Degree.

RESEARCH TOPICS (selection):
• Stochastic dynamics of linear and nonlinear systems.
• Seismic reliability of structures.
• Stochastic homogenization of composite materials.
• Response stochastic characterization of uncertain structures.
• Finite Element approaches not-thin structures.

ORGANIZATION OF INTERNATIONAL CONFERENCES (selection)
2004 Minisymposium on "Stochastic Structural Dynamics", ASEM'04, Seoul.

SCIENTIFIC COMMITTEE OF INTERNATIONAL CONFERENCES (selected)
2005 Member of the Technical Committee of ICOSSAR'05, Roma.

7. CARPINTERI Andrea
CURRICULUM VITAE of Andrea Carpinteri (DECEMBER 2015)

PERSONAL WEB PAGE:
http://www.unipr.it/arpa/dipcivil/CARPINTERI
EMAIL: andrea.carpinteri@unipr.it

NUMBER OF PUBLICATIONS AND DISSEMINATION:
114 Publications on International Refereed Journals
H-INDEX 20 in ISI Web of Knowledge, 23 in SCOPUS, 1.685 SCOPUS citations, 155 citations for the most cited paper.

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
2000–present Full Professor of Structural Mechanics (SSD ICAR/08), University of Parma

PROFESSIONAL EXPERIENCE:
1994-2000 Associate Professor of Structural Mechanics, University of Parma
1988-1994 Associate Professor of Structural Mechanics, University of Padua

EDUCATION:
1975-1980 Degree (magna cum Laude, 110/110 cum Laude) in Civil Engineering, University of Bologna.

COMMITTEE MEMBER OF INTERNATIONAL JOURNALS WITH PEER-REVIEW:
2015-present Member of the Editorial Board of Theoretical and Applied Fracture Mechanics
2013-present Member of the Editorial Board of Structural Engineering and Mechanics - An International Journal
2011-present Member of the Editorial Board of Journal of Testing and Evaluation (American Society of Testing and Materials)
2009-present Member of the Editorial Board of Frattura ed Integrità Strutturale
2011-present Member of the Editorial Board of Scientific Technical Review
2005-present Member of the Editorial Board of Strength of Materials
From 1997 to 2001 and 2007-present Member of the Editorial Board of International Journal of Fatigue
From 1996 to 2002 - Member of the Editorial Board of Fatigue and Fracture of Engineering Materials and Structures

COMMITTEES AND PROFESSIONAL ACTIVITIES (selected):
2000-present Chairman of TC3 (Technical Committee No.3 ‘Fatigue of Engineering Materials and Structures’) of ESIS (European Structural Integrity Society).
2013-present Coordinator of the Research Doctorate on ‘Civil Engineering and Architecture’ (University of Parma).
From 2010 to 2012 Member of the Board of a Research Doctorate on ‘Civil Engineering’ (University of Parma).
From 1991 to 2010 Member of the Board of a Research Doctorate on ‘Structural Mechanics’ (Central Department at the University of Bologna).
From 2007 to 2012 Director of the Laboratory ‘Materials and Structures Testing’ of the University of Parma.

CURRENT FUNDINGS FOR THE RESEARCH:
Fundings from private companies.

PAST FUNDINGS FOR THE RESEARCH (selection):
2011-2012 Spinner Research Programme “Progetti di Idee imprenditoriali innovative e/o ad alto contenuto di conoscenza tecnologica” (Call published on 6th May 2011 on Bollettino Ufficiale della Regione Emilia Romagna n. 70 - Part II) on “Development of a scientific methodology to compute flexible road pavements reinforced with synthetic interlayers”.
1985-1988 Member of a CNR (National Research Council) Committee for a preliminary analysis on a Research Project (Progetto Finalizzato) “Materials for Civil Engineering” (Committee Chairman: Professor Elio Giangreco, University of Naples).

CONSULTING ACTIVITIES (selection):
1985 Participation, as an expert of “Structural safety of buildings”, in a Rescue Mission to Messico after the earthquake in September 1985, on behalf of the Italian Ministry of Foreign Affairs (Ministero degli Affari Esteri).

TEACHING ACTIVITIES (selection):
• 1994-present Scienza delle Costruzioni (Structural Mechanics), for students of the Degree Course in Civil and Environmental Engineering, University of Parma
• 1992-1994 Mechanics of Materials and Fracture, for students of the Degree Course in Civil Engineering, University of Padua
• 1987-1992 Complementi di Scienza delle Costruzioni (Advanced Structural Mechanics), for students of the Degree Course in Civil Engineering, University of Padua

RESEARCH TOPICS (selection):
• Fracture Mechanics
• Mechanics of Fatigue-Fracture
• Criteria on fatigue resistance
• Size effect
• Fatigue behaviour of fiber-reinforced concrete beams

ORGANIZATION OF INTERNATIONAL CONFERENCES (selection)
2016 Co-Chairman of the 11th International Conference on "Multiaxial Fatigue and Fracture (ICMFF 11)", Seville, Spain, 1-3 June, 2016
2015 Co-Chairman of the 5th International Conference on "Crack Paths", Ferrara, Italy, 16-18 September, 2015
2013 Co-Chairman of the 10th International Conference on "Multiaxial Fatigue and Fracture (ICMFF 10)", Kyoto, Japan, 3-6 June 2013
2012 Co-Chairman of the 4th International Conference on "Crack Paths (CP 2012)", Gaeta, Italy, 19-21 September, 2012
2010 Co-Chairman of the 9th International Conference on "Multiaxial Fatigue and Fracture (ICMFF 9)", Parma, Italy, 7-9 June, 2010
2009 Co-Chairman of the 3rd International Conference on "Crack Paths (CP 2009)", Vicenza, Italy, 23-25 September, 2009
2006 Co-Chairman of the 2nd International Conference on "Crack Paths (CP 2006)", Parma, Italy, 14-16 September, 2006
2005 Co-Chairman of the Mini-Symposium on "Numerical Approaches to Fatigue" at the "11th International Conference on Fracture", Turin, Italy, 20-25 March, 2005
2003 Co-Chairman of the 1st International Conference on "Fatigue Crack Paths (FCP2003)", Parma, Italy, 18-20 September, 2003

1989 Editor of the book "Materiali per l'Ingegneria Civile" (in Italian), Consiglio Nazionale delle Ricerche (CNR), Rome (Italy), 221 pages, 1989

2014 Guest Editor of a Special Issue of the International Journal 'Theoretical and Applied Fracture Mechanics', "Current models in multiaxial fatigue and fracture – In memory of Professor Ewald Macha", Vol.73, 1-170, 2014 (together with Professor Ewald Macha, University of Opole)
2014 Guest Editor of a Special Issue of the International Journal 'Multiaxial Fatigue and Fracture 2013', Vol.67, 1-228, 2014 (together with Professors Takamoto Itoh, Ritsumeikan University, Thierry Palin-Luc, Arts et Métiers Paris Tech, Masao Sakane, Ritsumeikan University, and Luca Susmel, University of Sheffield)
8. TALIERCIO Alberto
PERSONAL WEB PAGE:
http://intranet.dica.polimi.it/people/taliercio-alberto/
RESEARCH GROUP WEB PAGE:
http://www.dica.polimi.it/ricerca/prodris/
EMAIL: alberto.taliercio@polimi.it

NUMBER OF PUBLICATIONS AND DISSEMINATION:
43 Publications on International Refereed Journals
H-INDEX 12 in ISI Web of Knowledge, 14 in SCOPUS, 494 SCOPUS citations, 68 citations for the most cited paper

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
2001-present Full Professor of Structural Mechanics (SSD ICAR/08), Politecnico di Milano, Dept. of Civil and Environmental Engineering

PROFESSIONAL EXPERIENCE:
1998-2001 Professeur chargé de cours, Ecole Polytechnique, Paris (F)
1994-2001 Associate Professor of Structural Mechanics, Politecnico di Milano
1992-1994 Associate Professor of Structural Mechanics, University of Parma
1990-1992 Assistant Professor of Structural Mechanics, Politecnico di Milano

EDUCATION:
1985-1988 PhD course in Structural Engineering, Politecnico di Milano
1978-1984 Degree in Civil Engineering, Politecnico di Milano

INSTITUTIONAL APPOINTMENTS:
2011-present Coordinator of the Degree Program in Civil Engineering, Politecnico di Milano
2009-2010 Vice-Dean of the School of Civil, Environmental and Land Management Engineering, Politecnico di Milano
2001-2005 Member of the Directory Board (Giunta) of the School of Civil, Environmental and Land Management Engineering, Politecnico di Milano

PAST FUNDINGS FOR THE RESEARCH (selection):
2004-2006 PRIN Project, coordinator of Milan research unit

TEACHING ACTIVITIES (selection):
• Since 1992: professor of Structural Mechanics (Scienza delle Costruzioni), degree programs in Civil, Management, Mechanical and Building Engineering, Politecnico di Milano
• Since 2011: professor of Solid Mechanics (Meccanica dei solidi), degree program in Energy Engineering, Politecnico di Milano
• 2003 and 2005: Mechanics of Composite Materials, PhD course in Structural Engineering, Politecnico di Milano
• 2001-2006: Computational Mechanics and Inelastic Structural Analysis, MSc in Civil Engineering, Politecnico di Milano, Lecco campus
• 1992-1994: Computer-aided Structural Analysis (Calcolo automatico delle strutture), degree program in Civil Engineering, University of Parma

RESEARCH TOPICS (selection):
• Constitutive modelling of heterogeneous media (Fiber-Reinforced Composites, Masonry)
• Structural Optimization

INVITED PRESENTATIONS AT INTERNATIONAL CONFERENCES (selected, since 2005)
2007 Invited Lecture, STREMAH 2007, Prague
2009 Invited Lecture, STREMAH 2009, Tallinn

9. GUSELLA Vittorio
PERSONAL WEB PAGE:
http://www.unipg.it/pagina-personale?n=vittorio.gusella
RESEARCH GROUP WEB PAGE:
http://www.ing1.unipg.it/ricerca/gruppi-di-ricerca/scienza-delle-costruzioni
EMAIL: vittorio.gusella@unipg.it
NUMBER OF PUBLICATIONS AND DISSEMINATION:
47 Publications on International Refereed Journals
H-INDEX 10 in ISI Web of Knowledge, 11 in SCOPUS, 383 SCOPUS citations, 53 citations for the most cited paper

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
2004-present Full Professor of Structural Mechanics (SSD ICAR/08), University of Perugia

PROFESSIONAL EXPERIENCE:
1992-2004 Associate Professor of Structural Mechanics, University of Perugia
1989-1992 Technician at Department of Civil and Environmental Engineering, University of Florence

EDUCATION:
1976-1982 Degree in Civil Engineering, University of Florence.
1983-1986 PhD degree in Structural Engineering (12-12-1987)

COMMITTEES AND PROFESSIONAL ACTIVITIES (selected):
2012-present President of the Civil Engineering Board of the Department of Civil and Environmental Engineering of the University of Perugia,
2007-present President of the Italian Association of Wind Engineering - ANIV (2007-2015) and member of the Steering Committee,
2013-present Member of the Scientific Committee of the AID Monuments series (ARCNE - Editor),
2006-present member of the Working Group on the “Wind Actions” of Standard Code Commission of the National Research Council (CNR).
2011- 2013 Director of the master "Management of the urban requalification: restoration activities, administration and development".
Further activities:
Adviser of the" Centro Studi Mastrodicasa" di Perugia (Study centre for the diagnosis and therapy of structural damage of historic buildings).
Member of the Board of Teachers of several PhD School:
- Civil Engineering and Innovative Materials of the Univ. of Perugia,
- International PhD Course in "Mitigation of Risk due to natural Hazards on Structures and Infrastructures" (associated Italian universities: Firenze, Roma "La Sapienza", Perugia, IUAV Venezia, Trieste, Chieti-Pescara "G.D'Annunzio" - partner: Technische Universität Carolo-Wilhelmina di Braunschweig, Germany),
- International in Civil and Environmental Engineering (associated Italian universities: Firenze, Perugia, Pisa - partner: Technische Universität Carolo-Wilhelmina di Braunschweig, Germany).

PAST FUNDINGS FOR THE RESEARCH (selection):
1995 - "Wind, structures and environment: design, control and codes” – Project PRIN 95,
1997 - "Research and experimental activity on building aerodynamics and wind engineering” (RESACIV)” – Project PRIN 97,
1999 - "Analysis, control and wind hazard mitigation on buildings and urban environment (ACME CUE)” – Project PRIN 99,
2001 - "Wind and Infrastructures: Dominating Eolian Risk For Utilities and Lifelines” (Winderful)” – Project PRIN 2001,
2003 - "Life-cycle Performance, Innovation and Design Criteria for Structures and Infrastructures Facing Eolian and Other Natural Hazards (PERBACCO)” – Project 2003,
Research project (coordinator) :
2002 - "Monitoring system and analysis of the Ponte delle Torri in Spoleto", Comune di Spoleto,
2003 - "Wind speed data and structural response, analysis of experimental testing" , Comune di Spoleto,
2006 - "Anchorage devices for steel and composite tie-beam in historic and monumental building restoration”, Fondazione Cassa Risparmio Perugia,
2007 - "Identification and analysis of the actual damage in the Ponte delle Torri in Spoleto" Società SACEN s.r.l of Napoli e M&G Engineering Spoleto,
2010 - "Development of technologies for the construction of ventilated walls and for the increase of the ductility of the supporting panel", FBM s.p.a. of Marsciano.

Further activities:
2001 - "Advanced techniques for building and camouflage of mobile phone antennas", CAEL of Massa Martana (PG),
2004 - "Movable broadcasting systems: design under wind loading. Production and management innovative processes” CAEL of Massa Martana (PG),
2006 - "Identification , modelling and analysis of prefabricated support systems for broadcasting apparatus" CAEL of Massa Martana (PG).

TEACHING ACTIVITIES (selection):
- From the academic year 2014/15 is professor of Structural Mechanics (Scienza delle Costruzioni), Civil Engineering, University of Perugia
• From the academic year 2014/15 is professor of Nonlinear Structural Mechanics, Civil Engineering, University of Perugia

• He was professor of Structural Dynamics, Civil Engineering, University of Perugia
• He was professor of Computational Structural Mechanics, Civil Engineering, University of Perugia
• He was professor of Structural Mechanics, Building Engineering and Architecture, University of Perugia
• He was professor of Fundamentals of Mechanics, Mechanical Engineering, University of Perugia
• He was professor of Advances in Mechanics, Mechanical Engineering, University of Perugia

RESEARCH TOPICS (selection):
• Wind Engineering (Micrometeorological model of wind speed, Numerical analysis of the structural response, Simulation of correlated wind field, Wind response of antennas and cooling towers, Non-Gaussian pressure field and structural response, Aeroelastic behaviour of bridge, Damage Accumulation in Glass Plates, Active control, Cable dynamics),
• Structural Reliability (Estimation of extreme winds, Seismic vulnerability, Safety Estimation with Cumulative Damage),
• Steel structures (Eccentrically X-bracing, Reinforcement of masonry walls by steel X-Bracing),
• Historic buildings and structural monitoring (Monitoring system on "Brunelleschi Dome" in Florence, Monitoring and structural analysis of the "Ponte delle Torre" in Spoleto),
• Structural Identification (Hilbert Transform, Innovative experimental system: laser vibrometer, Microwave Techniques),
• Experimental analysis (Broadcasting antennas, dynamic behaviour of a drilling derrick, guyed mast and antennas for mobile phone networks),
• Homogenization (Homogenization of non-periodic masonry, RVE and probabilistic analysis of the texture, Strength surface, SEPUC).

ORGANIZATION OF CONFERENCES (selection):

SCIENTIFIC COMMITTEE OF INTERNATIONAL CONFERENCES (selection):

10. BRUNO Domenico
PERSONAL WEB PAGE: http://www.ingegneriacivile.unical.it/persone/docenti/ordinari/?wpapl_id=54
RESEARCH GROUP WEB PAGE: http://www.ingegneriacivile.unical.it/
EMAIL: domenico.bruno@unical.it

NUMBER OF PUBLICATIONS AND DISSEMINATION:

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
1990-present Full Professor of Structural Mechanics at the Department of Civil Engineering of the University of Calabria.

EDUCATION:
Degree in Civil Engineering, University of Naples "Federico II".

COMMITTEE MEMBER OF INTERNATIONAL JOURNALS WITH PEER-REVIEW:
Presently, is member of the editorial board of the INTERNATIONAL JOURNAL OF STRUCTURES and of the INTERNATIONAL JOURNAL OF BRIDGE ENGINEERING.

COMMITTEES AND PROFESSIONAL ACTIVITIES (selected):
Currently, he is the President of the University Evaluation Unit for the University of Calabria; 1992 -1998, 2006 - 2011 Head of the Department of Structural Engineering, University of Calabria; Member of the Academic Board of the PhD Course in "Materials and structures engineering", University of Calabria; Member of the Academic Board of the PhD Course "SIACE", University of Calabria; He is peer reviewer for the evaluation of the Italian research system achievements in the time period 2004-2010 (VQR 2004-2010) promoted by the Italian Research and University Evaluation Agency (ANVUR), within the Civil Engineering and Architecture area for the disciplinary field of mechanics of materials and
structures. (GEV08).

INTERNATIONAL JOURNAL REFEREE ACTIVITIES:

PAST FUNDINGS FOR THE RESEARCH (selection):
He was responsible of several research projects, like that funded by the European Community entitled "Materials for Innovative industrial Applications- Composite Materials and their use for structural rehabilitation", the national research project of the Italian Research Council (CNR) "Innovative materials in structural engineering and their use in constructions", PRIN research projects entitled "High performance concrete structures and their application in civil Engineering","Deformability in long span bridges under moving loads".

TEACHING ACTIVITIES (selection):
His teaching activity includes undergraduate courses of Strength of Materials, Dynamics of Structures, Theory of Structures, Bridges, Statics.

RESEARCH TOPICS (selection):
Long span bridges: static and dynamic analysis with moving loads;
Composite materials: interface models for delamination, debonding in FRP-strengthened beams, interlaminar and intralaminar damage, laminated composite plates;
Homogenization: Macrscopic properties of composite materials with evolving micro-structure due to contact and fracture initiation and propagation; interactions between micro and macro-instabilities in solids with heterogeneous microstructure.

11. ROSATI Luciano
PERSONAL WEB PAGE:
www.docenti.unina.it/luciano.rosati
RESEARCH GROUP WEB PAGE:
EMAIL:
rosati@unina.it
NUMBER OF PUBLICATIONS AND DISSEMINATION:
40 Publications on International Refereed Journals
H-INDEX
11 in ISI Web of Knowledge, 13 in SCOPUS, 427 SCOPUS citations, 48 citations for the most cited paper.
CURRENT ACADEMIC POSITION AND AFFILIATIONS:
2004-present Full Professor of Structural Mechanics (SSD ICAR/08), University of Naples
2005-2011 - Member of the National Secretary of the SSD ICAR/08 Association

PROFESSIONAL EXPERIENCE:
1998-2004 Associate Professor of Structural Mechanics, University of Naples
1990-1998 Researcher of Structural Mechanics, University of Naples
1997 - Recipient of a two-months NATO-CNR fellow grant at the Dept. of Aeronautics, Imperial College in London
1986-1989 PhD in Structural Mechanics, University of Naples

EDUCATION:
1976-1982 Degree in Civil Engineering, University of Naples (24 years old).
1982-1984 Degree in Civil Transportation Engineering, University of Naples (26 years old).

COMMITTEE MEMBER OF INTERNATIONAL JOURNALS WITH PEER-REVIEW:
COMMITTEES AND PROFESSIONAL ACTIVITIES (selected):
2010-present - Coordinator of the PhD School in Structural, Geotechnical and Seismic Risk Engineering , University of Naples
2015 Member of the examination committee for the admission to the PhD School in Seismic, Geotechnical and Seismic Risk Engineering, University of Naples (XXI cycle)
2011 President of the examination committee for the admission to the PhD School in Construction Engineering, University of Naples (XXVIII cycle)
2009 Member of the examination committee for the final discussion of the PhD School in Construction Engineering, University of Cosenza (XXIII cycle)
2005 Member of the examination committee for the admission to the PhD School in Construction Engineering, Polytechnic of Turin (XXII cycle)
2015 - President of the examination committee for a competition of Associate Professor in Structural Mechanics (SSD ICAR/08), University of Naples
2014 - President of the examination committee for a competition of Associate Professor in Structural Mechanics (SSD ICAR/08), University of Naples
2014 - Member of the examination committee for a competition of Associate Professor in Structural Mechanics (SSD ICAR/08), University of Bologna
2010 - Member of the examination committee for a competition of Associate Professor in Structural Mechanics (SSD ICAR/08), University of Reggio Calabria
2006 - Member of the examination committee for a competition of Associate Professor in Structural Mechanics (SSD ICAR/08), Polytechnic of Milan
2013 - President of the examination committee for a competition of Researcher in Structural Mechanics (SSD ICAR/08), University of Naples

CURRENT FUNDINGS FOR THE RESEARCH:
Fundings from private companies
NEMA: Expanded Multifunctional Nanocomposite for Aeronautical Seats – PON Campania 2012-2015

PAST FUNDINGS FOR THE RESEARCH (selection):

CONSULTING ACTIVITIES (selection):
2010-present - Member of the Technical-Administrative Committee of the Department of Public Works for Campania and Molise
2011-present - Member of the Technical-Administrative Committee of the Department of Public Works for Lazio, Abruzzo e Sardegna

TEACHING ACTIVITIES (selection):
• Since the academic year 2000/01 is professor of Structural Mechanics, Mechanical Engineering, Bachelor Degree, University of Naples
• Since the academic year 2000/01 is professor of Structural Mechanics, Science and Material Engineering, Bachelor Degree, University of Naples
• Since the academic year 2005/06 is professor of Nonlinear Structural Mechanics, Master Degree in Civil and Geotechnical Engineering, University of Naples
• Since the academic year 2005/06 is professor of Finite Elements in Structural Analysis, Master Degree in Civil and Geotechnical Engineering, University of Naples
• He has been professor of Mechanics of Solids, Mechanical Engineering, Bachelor Degree, University of Naples
• He has been professor of Structural Plasticity, Mechanical Engineering, Bachelor Degree, University of Naples

RESEARCH TOPICS (selection):
• Integration schemes and finite element formulations in plasticity
• Ultimate limit state analysis or reinforced concrete cross sections
• Nonlinear analysis of reinforced concrete framed and shear walled structures
• Nonlinear analysis of steel framed structures
• Design and analysis of irregular structures against earthquakes
• Dynamic analysis of impact tests including geometrical and mechanical nonlinearities
• Finite strain analysis of saturated porous materials
• Implementation of finite elements with geometrical and mechanical nonlinearities
• Analytical solutions for elastic isotropic half-spaces subject to thermal, vertical and/or horizontal loads
• Modeling of transversely isotropic materials
• Modeling of magneto-electro-elastic materials
• Potential theory
• Form finding analysis by the Force Density Method and Thrust Network Analysis

PATENTS

INVITED PRESENTATIONS AT INTERNATIONAL CONFERENCES AND/OR SCHOOLS (selected from 2005)

ORGANIZATION OF INTERNATIONAL CONFERENCES (selection)
2013 Chairman, AIMETA Conference, Bologna, Italy
2012 Chairman, AIMETA Conference of Computational Mechanics, Rosarno, Italy
1999 Chairman, AIMETA Conference of Computational Mechanics, Napoli, Italy

SCIENTIFIC COMMITTEE OF INTERNATIONAL CONFERENCES (selected from 2006)
2013 AIMETA Conference, Bologna, Italy
2012 AIMETA Conference of Computational Mechanics, Rosarno, Italy
1999 AIMETA Conference of Computational Mechanics, Napoli, Italy

INTERNATIONAL AWARDS AND OTHER HONORS:
Recent Publications (not included in the official list)


12. MAROTTI DE SCIARRA Francesco
PERSONAL WEB PAGE: https://www.docenti.unina.it/francesco.marotti%20de%20sciarra
EMAIL : marotti@unina.it

NUMBER OF PUBLICATIONS AND DISSEMINATION:
51 Publications on International Refereed Journals
H-INDEX 12 in SCOPUS, 342 SCOPUS citations, 23 citations for the most cited paper.

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
2001- present - Confirmed Associated Professor of Structural Engineering (SSD ICAR/08), Department of Structures for Engineering and Architecture, University of Naples Federico II

PROFESSIONAL EXPERIENCE:
1988-2001 - Associated Professor of Structural Engineering, Department of Structures for Engineering and Architecture, University of Naples Federico II
1988-2001 - Researcher at Engineering Faculty of University of Reggio Calabria

EDUCATION:
1997 – Winner of a C.N.R. scholarship for researches at the West Virginia University (USA) in the field of innovative and composite materials.
1997 - Winner of a Fulbright scholarship in the category professors/researchers for a research period at the West Virginia University (USA): "Interface bound strength and integrity under combined static-dynamic loading of composite".
1994 – PhD degree in "Ingegneria delle Strutture" at the University of Naples Federico II. Thesis title: A unitary approach to elastoplasticity models with internal variables.
1994 – Winner of the national prize "Fondazione Adriano Galli" research in the field of structural mechanics.
1989 – Professional qualification as engineering with the voting 120/120.
1988 – Full degree in Civil Engineering at the University of Naples Federico II with the voting of 110/110 cum laude.

1981 - First Certificate in English of Cambridge University (UK).

MEMBER OF THE BOARD OF JOURNALS WITH INTERNATIONAL PEER REVIEW:

COMMISSIONS
2014 - Member of the Joint Commission Teachers-Students of Science degree in Architecture, University of Naples Federico II.
2014 - Member of the Management Committee CIRAM (Interdepartmental Centre for Environmental Research).
2013 - Member of the board of the Department of Structures for Engineering and Architecture
2011 - Component of the committee for giving the PhD title in "Sistemi Strutturali Civili e Meccanici", University of Trento.
2010-2013 - Member of the Board of the PhD in Construction Engineering at the Faculty of Engineering, University of Naples Federco II.
2005-2013 - Member of the Education Committee of the Corso di Laurea Magistrale in Architecture of the Faculty of Architecture.
2005 - Component of the committee for giving the PhD title in "Ingegneria delle Costruzioni e Ingegneria delle Strutture".
2005-2010 - Member of the Academic Board of the PhD in Structural Engineering of the University of Naples Federico II.
1999-2003 - Member of the Committee on Cultural Policy and Research of the Faculty of Architecture of the University of Naples Federico II.
2000 - Proponent of the new Corso di Laurea Magistrale in Architecture of the Faculty of Architecture of the University of Naples Federico II.

FUNDING FOR RESEARCHES
2007-2008 – Scientific local coordinator PRIN "Localization of deformation, formation and propagation of fractures: theoretical and computational modeling in high strength concrete".
2011-2014 – Component of the project PON technologies for seismic protection and enhancement of cultural complexes Interest (TRY). Funding: Ministry of Education.
2010-2013 - Component units of the national research project Department of Civil Protection - Consortium RELUIS.

Component of C.N.R. Research teams:
- 1994 - Principles and computational methods in elastic-visco-plasticity;
- 1995 - Modeling inelastic phenomena in fiber-reinforced composites;
- 1997 - Modeling and calculation algorithms in phase inelastic for composite laminates;

Component of M.U.R.S.T. Research teams:
- 1996 - Patterns of damage to composite materials;
- 1998 - Modeling and structural analysis of masonry panels established by composite laminates;
- 2000 - Modeling and analysis of concrete structures, high-performance;
- 2001 – PRIN "High performance concretes: mechanical modeling and structural design,
- 2003 – PRIN "Theoretical modeling and experimental investigation of phenomena of damage in ordinary concrete and fiber-reinforced".

CONSULTATIONS
2010-2012 - Responsible for technical and scientific research contract "Study of non-bearing plasterboard systems in the seismic domain and development of new earthquake-resistant systems". Funding: Lafarge Gypsum International.
2011 - Responsible for technical and scientific research contract "UHPC Beam-Column Connections under cyclic loading." Funding: Lafarge International.

TEACHING
Fundamentals of Structural Engineering – corso di laurea in Architettura SUE
Structural Engineering – corso di laurea in Architettura SUE
Teory of Structures - corso di laurea in Scienze dell'Architettura
Static – corso di laurea in Architettura
Environment-Structure Interaction – corso di laurea in Architettura

RESEARCH TOPICS
Thin-walled beams; structural mechanics with convex constraints; Linear and nonlinear analysis of structures; finite deformations; constitutive models, formulations and variational approximation methods in elasticity, visco-plasticity and damage to internal variables; materials are not resistant to traction; principles of limitation; finite element; mixed methods and enhanced type; nonlocal models in elasticity, damage and plasticity; nanostructures and small-scale effects.

SCIENTIFIC COMMITTEE OF INTERNATIONAL CONFERENCES (SELECTED)
2015 - Member of the Scientific Committee of the VI International Conference on Computational Methods for Coupled Problems in Science and Engineering, Venice, Italy.
2013 - Member of the Scientific Committee of the 5th International Conference on Computational Methods for Coupled Problems in Science and Engineering, Spain.
2011 - Member of the Scientific Committee IV International Conference on Computational Methods for Coupled Problems in Science and Engineering, Kos, Grecia.

INVITED PRESENTATIONS AT INTERNATIONAL CONFERENCES (selected)
2011 - Chairman and organizer of the session Plasticity and Damage: Experimental and Numerical Simulations, IV International Conference on Computational Methods for Coupled Problems in Science and Engineering.
2010 - Chair of the session Computational Plasticity I, 16th International Symposium on Plasticity and its Current Applications, St. Kitts, USA.
2009 - Chair of the session Polycrystal Plasticity and Viscoplasticity, 15th International Symposium on Plasticity and its Current Applications, St. Thomas, USA.
2008 - Chair of the session "Finite Plasticity & Viscoplasticity", 14th International Symposium on Plasticity and its Current Applications, USA.
2008 - Chair of the session S2, 3rd Canadian Conference on Nonlinear Solid Mechanics, Toronto, Canada.

13. CECCHI Antonella
RESEARCH GROUP WEB SITE: https://sites.google.com/a/iuav.it/iuav-sdc/
EMAIL : cecchi@iuav.it

NUMBER OF PUBLICATIONS AND DISTRIBUTION:
35 Publications in International Journals
H-INDEX: 11 according to ISI Web of Knowledge, according to 11 SCOPUS

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
from 2011 to now: Full Professor in Strength of Materials, Department of Architecture Construction Conservation, Università IUAV di Venezia

PROFESSIONAL EXPERIENCE:
from 2006 to 2011: Associate Professor in Strength of Materials, Faculty of Architecture, Università IUAV di Venezia
from 2000 to 2006: Research fellow, Università IUAV di Venezia
EDUCATION:

from 1994 to 1997: Ph.D
from 1986 to 1992: Degree in Architecture, Università IUAV di Venezia, Italy

COMMITTEES AND PROFESSIONAL ACTIVITIES (SELECTED):

from 2015 to now: Director of the Department of Architecture Construction Conservation, Università IUAV di Venezia
from 2014 to 2015: Rector’s delegate to teaching activities
from 2014 to 2015: Deputy Director of the IUAV Ph.D. School
from 2013 to now: Scientific Responsible of the curriculum “Innovation for Building and Cultural Heritage” for the Ph.D. in “Architecture, City and Design”, at IUAV Ph.D. School
from 2012 to 2014: Deputy Director of the Department of Architecture Construction Conservation

CURRENT RESEARCH FUNDS:

PRIN 2010-2011: "Models and algorithms for the nonlinear analysis of structures and the validation of performance-based design rules”.

TEACHING ACTIVITIES (SELECTED):

• Structural Mechanics 1 and 2, Degree in Architecture, Università IUAV di Venezia
• Finite Elements Methods, course for the Ph.D. in "Architettura, Città e Design”, at IUAV Ph.D School, curriculum in “Innovazione per il costruire e per il patrimonio culturale”
• Fundamentals of Homogenization Theory, course for the Ph.D. in "Architettura, Città e Design”, at IUAV Ph.D School, curriculum in “Innovazione per il costruire e per il patrimonio culturale”

RESEARCH TOPICS (SELECTED):

• Homogenization: in-plane and out-of-plane behavior of masonry walls
• Identification between 3D discrete models and continuous models: Cauchy and Cosserat continuous models
• Failure analysis of masonry structures
• Fiber reinforced materials
• Multi-scale analysis
• Viscous-elastic models: discrete element models DEM and equivalent continua for materials with periodic micro-structure
• Dynamic analysis of periodic structures: equivalent standard and micropolar continuous models and DEM models.
• Mixed finite and discrete element models FEM/DEM.

14. ZAVARISE Giorgio
PERSONAL WEB PAGE:
https://www.unisalento.it/people/giorgio.zavarise

EMAIL:
giorgio.zavarise@unisalento.it

NUMBER OF PUBLICATIONS AND DISSEMINATION (International):
54 Publications on Refereed Journals
3 Monographs
4 Book chapters
7 Book referred contributions
65 International Conference contributions

SCIENTIFIC PROFILE:
Scopus: H-index=22; Documents=56; Citations=1058; Co-authors=46
ISI Web of Knowledge: H-index=20; Documents=51; Citations=874

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
2006-present Full Professor of Structural Mechanics (SSD ICAR/08), Università del Salento - Lecce
PROFESSIONAL EXPERIENCE:
1998-2006 Associate Professor of Structural Mechanics, Politecnico di Torino
1993-1998 Assistant professor of Structural Mechanics, Università di Padova
1992-1993 Post-doc at the Faculty of Engineering, Università di Padova

EDUCATION:
1990 PhD in Structural Mechanics, Università di Padova
1986 Degree in Civil Engineering, Università di Padova

COMMITTEE MEMBER OF INTERNATIONAL JOURNALS WITH PEER-REVIEW:
Member of the Editorial Board of "Computational Mechanics"

REVIEWER ACTIVITY:
International journals:
• Archive of Applied Mechanics
• ASME Journal of Applied Mechanics
• ASME Journal of Tribology
• Computational Mechanics
• Computer Methods in Applied Mechanics and Engineering
• Communications in Numerical Methods in Engineering
• Computers & Structures
• Engineering Computation
• European Journal of Mechanics A/Solids
• Engineering Computations: International Journal for Computer-Aided Engineering and Software
• International Journal of Mechanical Sciences
• International Journal of Solids and Structures
• International Journal for Numerical Methods in Engineering
• Journal of Computational Physics
• Journal of Engineering Mathematics
• Meccanica
• Mechanics of Advanced Materials and Structures
• Mechanics Research Communications
• Tribology International
• Wear

Research project evaluation:
• Miur (Italian Ministry)
• Puglia Region
• Deutsche Forschungsgemeinschaft (German Research Foundation)
• Swiss National Science Foundation
• Università di Padova
• Fonds National de la Recherche Luxembourg
• Austrian Science Fund (FWF)
• Shota Rustaveli National Science Foundation (SRNSF) – Georgia

COMMITTEES AND PROFESSIONAL ACTIVITIES:
• PhD Committee – Structural Engineering - Politecnico di Torino (1998-2007)
• PhD Committee – Mechanical and Industrial Engineering - Università del Salento (2007-2011)
• PhD Committee – Engineering of Complex Systems – Università del Salento (2013-)
• PhD evaluation Committee - Universidad Pontificia Comillas – Madrid
• PhD evaluation Committee - University of Hannover
• Associazione Italiana di meccanica Teorica e Applicata (AIMETA);
• Gruppo Italiano Frattura (IGF);
• Gruppo Italiano di Meccanica Computazionale (GIMC);
• Chairman of the “Gruppo Italiano di Meccanica Computazionale” (GIMC) since 10/2013;
• International Association of Computational Mechanics (IACM) General Council since 2013;
• European Community on Computational Methods in Applied Sciences (ECCOMAS) since 2013;
• Excellence Center “Scienza ed applicazioni di paradigmi computazionali avanzati” – Advanced Computing Group, Università di Padova.

CURRENT FUNDINGS FOR THE RESEARCH:
• Fundings from private companies,
• 2011-2015: Collaboration to ERC-2011-StG – Proposal n. 279439 INTERFACES, Coordinator prof. L. De Lorenzis
• 2012-2015: Collaboration to FIRB "Modelli di meccanica strutturale per applicazioni in ambito di energie rinnovabili" (codice RBFR107AKG), Coordinator ing. Marco Paggi, Politecnico di Torino

PAST FUNDINGS FOR THE RESEARCH:
• 2009-2012: Scientific coordinator of the Lecce unit "PRIN - 2008”; Applicazioni avanzate di Meccanica della Frattura allo studio dell’integrità e durabilità di materiali e strutture"
• 2006-2009 Consulting for the European Project "Leonardo; Innovative Learning and Training On Fracture
• 2007-2007 Scientific coordinator of the Turin unit “PRIN - 2005”; Meccanica del contatto e meccanica della frattura: sinergie, interazioni e applicazioni
• 2003-2006: National coordinator of the European Project "Leonardo; Numerical Medium-Level Training on Industrial Friction Problems"
• 2003-2005: Scientific coordinator of the Turin unit “PRIN - 2003”; Aspetti fisici e computazionali nella meccanica del contatto fra solidi
• 2000-2002: Collaboration to the European Project GROWTH GRD1-10330, G1RD-CT2000-00161-“CUTTER” – Enhanced design and production of wear resistant rock cutting tools for construction machinery

CONSULTING ACTIVITIES:
2011-2015: Consulting activity for ILVA Taranto
2015: Participation to the Committee for preservation of the marble floor of the St. John Cathedral, Malta
2008: Static and Administrative asseveration for Università del Salento
2000-2015 Consulting activity on numerical modeling for EnginSoft

TEACHING ACTIVITIES:
Università del Salento:
• From the academic year 2006/2007: Courses of Structural Mechanics (Scienza delle Costruzioni), for Civil and Industrial Engineering students
• From the academic year 2008/2009: Courses of Computational Mechanics, Civil Engineering students
Politecnico di Torino:
• From the academic year 1998/1999 to 2005/2006: Courses of Structural Mechanics (Scienza delle Costruzioni), Civil and Mechanical Engineering students

RESEARCH TOPICS:
• Computational Contact Mechanics
  o Contact constitutive laws
  o Thermomechanical coupling
  o Contact algorithms
• Structural problems in High Tech fields:
  o Sub-atomatic particles detectors
  o Nuclear fusion technologies
  o Telescopes
• Thermomechanical problems in large concrete castings

CHAIRMAN OF INTERNATIONAL CONFERENCES:
• ICCCM 2009 – International Conference on Computational Contact Mechanics (Lecce, 2009).
• ICCCM 2011 – International Conference on Computational Contact Mechanics (Hannover, 2011).
• ICCCM 2013 – International Conference on Computational Contact Mechanics (Lecce, 2013).
• ICCCM 2015 – International Conference on Computational Contact Mechanics (Hannover, 2015).
• ICCCM 2017 – International Conference on Computational Contact Mechanics (Lecce, 2017).

SCIENTIFIC/ORGANIZING COMMITTEE OF INTERNATIONAL CONFERENCES:
• ICF11 – 11th International Conference on Fracture (Torino, 2005).
• FRAMCOS-6 – 6th International Conference on Fracture Mechanics of Concrete and Concrete Structures (Catania, 2007).
• WCCM8 - 8th World Congress on Computational Mechanics (Venice, 2008).
• TCN-CAE 2008 - International Conference on CAE and Computational Technologies for Industry (Venezia, 2008).
• CMIS09 – 5th Contact Mechanics International Symposium (Chania, Greece, 2009).
• ECCM2010 – European Conference on Computational Mechanics (Parigi, 2010).
• XX National Conference if the Italian Group of Computational Mechanics (Cassino, 2014).
• EUROMECH Colloquium 575 – Contact Mechanics and Coupled Problems in Surface Phenomena (Lucca, 2015).
• CMIS 2016 – Contact Mechanics International Symposium (Warsaw, Poland, 2016).

INTERNATIONAL SCIENTIFIC COOPERATIONS AND STAGES:
• 1989-1990 University of Hannover (Germania), Prof. E. Stein, Prof. P. Wriggers (4 months)
• 1990-1997 University of di Darmstadt (Germania), Prof. P. Wriggers (1 month per year)
• 1996 University of California at Berkeley Prof. R.L. Taylor (6 months)
• 1998- Several visits at University of Hannover (Germania), Prof. P. Wriggers.

**15. RIZZI Nicola Luigi**
Born in Canosa di Puglia (Bari), October, 26, 1950.

EMAIL : nicolaluigi.rizzi@uniroma3.it

**NUMBER OF PUBLICATIONS AND DISSEMINATION:**
- 23 Papers published on International Journals
- 7 Contributions in volumes (English)
- 1 Contribution in volume (French)
- 1 Book (english)

ISI Web of Knowledge: h-index 9, citations 135
SCOPUS: h-index 9, citations 191

**CURRENT ACADEMIC POSITION AND AFFILIATIONS:**
Full Professor, of Structural Mechanics, Faculty of Architecture, University Roma Tre, Roma, from November, 1, 1992.

**PROFESSIONAL EXPERIENCE:**
- Full Professor, of Structural Mechanics, Faculty of Architecture, University La Sapienza, Roma, from November, 1, 1990 to October, 31, 1992.
- Associate Professor of Structural Mechanics, Faculty of Engineering, University La Sapienza, Roma, from April, 22, 1988 to October, 31, 1990.
- Research Fellow, University La Sapienza, Roma, from August, 1, 1981 to April, 21, 1988.

**EDUCATION:**
Graduated cum laude in Civil Engineering at the University La Sapienza, Roma, October, 15, 1974.

**COMMITTEES AND PROFESSIONAL ACTIVITIES (selected):**
- Head of the Department of Structures, from January, 1, 2003 to October, 30, 2009.
- Member of the Academic Senate (three mandates)
- Former Member of PhD council in Theoretical and Applied Mechanics University La Sapienza, Roma, then Civil Engineering Sciences, University Roma Tre.
- Member of the of PhD council in Architecture, Innovation, Heritage, University Roma Tre.

**CURRENT FUNDINGS FOR THE RESEARCH:**
PRIN 2010

**PAST FUNDINGS FOR THE RESEARCH (selection):**
PRIN 1998
PRIN 2003
Masterplan of the town of Constantina (Algeria) (founded with 500,000 euro from the Italian Ministry of Foreign Affairs (2003--2006)

**TEACHING ACTIVITIES (selection):**
Strength of materials: Engineering, Architecture
Foundations of structural mechanics: Architecture

**RESEARCH TOPICS (selection):**
Nonlinear mechanics;
Critical and postcritical behaviour of elastic structures;
Nonstandard continua (microstructured, higher gradient);
Simbolic manipulation;
Continuous models for truss beams;
One dimensional modelling of Thin Walled Beams;
Continuous modelling of masonry.
Homogenization methods.
Continuous modelling of Carbon Nano Sheets and Tubes

INVITED PRESENTATIONS AT INTERNATIONAL CONFERENCES AND/OR SCHOOLS (selected from 2005):

2015 Invited Lecture, CC2015 (Prague)

ORGANIZATION OF INTERNATIONAL CONFERENCES (selection):

2014 CST2014 (Naples) Minisymposium on: ‘Nonlinear beam and plate models with a view to applications’

2013 CC2013 (Cagliari) Structural and material instabilities: new achievements in theoretical and computational modelling

SCIENTIFIC COMMITTEE OF INTERNATIONAL CONFERENCES (selected from 2006)

CST2012 (Crete)
CC2013 (Cagliari)
CST2014 (Naples)
CC2015 (Prague)
ICASS2015 (Lisbon)

INTERNATIONAL AWARDS AND OTHER HONORS:


16. CADDEMI Salvatore
CURRICULUM VITAE: SALVATORE CADDEMI

PERSONAL WEB PAGE: http://www.dicar.unict.it/Personale/Docenti/Docenti/Caddemi.html
EMAIL : scaddemi@dica.unict.it

NUMBER OF PUBLICATIONS AND DISSEMINATION:

43 Publications on International Refereed Journals
81 Publications on Proceedings of National and International Conferences
3 Publications on Book Chapters
2 Research Reports
1 Ph.D. Thesis

H-INDEX: 14 ISI Web of Knowledge, 15 SCOPUS, 559 SCOPUS citations, 60 citations for the most cited paper

CURRENT ACADEMIC POSITION AND AFFILIATIONS:

2001-present Full Professor of Structural Mechanics (SSD ICAR/08), Department of Civil and Architectural Engineering, University of Catania, Italy

PROFESSIONAL EXPERIENCE:

1998-2001 Associate Professor of Structural Mechanics (SSD ICAR/08), University of Catania, Italy
1996-1997 Visiting Researcher at ”Department of Structural Engineering and Materials” of Technical, University of Denmark, Lingby, Denmark
1991-1998 Researcher of Structural Mechanics (SSD ICAR/08), University of Palermo, Italy
1990-1991 Post Doctoral Research Fellow at ”FRD/UCT Centre for Research in Computational and Applied Mechanics”, University of Cape Town, South Africa
1988-1989 Research Officer at ”FRD/UCT Centre for Research in Computational and Applied Mechanics”, University of Cape Town, South Africa

EDUCATION:

1987-1990 Ph.D. in Structural Engineering
1978-1984 Master Degree in Civil Engineering cum laude (23 years old) , University of Palermo, Italy

COMMITTEE OF INTERNATIONAL JOURNALS WITH PEER-REVIEW:

2013-present Member of the Editorial Board of Mathematical Problems in Engineering

PAST FUNDINGS FOR THE RESEARCH:

2008-2009 Funding from ”Department of Civil Protection” (Region of Sicily) for the study of ”Seismic isolation of existing buildings and application to a case study”
Coordinator of Catania Research Unit, PRIN 2003 (National Coordinator Prof. Antonino Morassi)

TEACHING ACTIVITIES (selection):

- 2012-2015 Professor of "Structural Mechanics" in Architectural Engineering, University of Catania
- 2010-2011 Professor of "Inelastic Analysis of Structures" in Civil and Geotechnical Engineering, University of Catania
- 2005-2010 Professor of "Structural Mechanics" in Architectural and Environmental Engineering, University of Catania
- 2003-2010 Professor of "Strength of Materials" in Building Restoration and Environmental Engineering, University of Catania
- 2001-2003 Professor of "Structural Mechanics" in Civil and Environmental Engineering, University of Enna
- 1998-2003 Professor of "Structural Mechanics" in Electric and Electronic Engineering, University of Catania
- 1995-1998 Professor of "Reliability of Structures" in Civil Engineering, University of Messina
- 1995-1998 Professor of "Structural Mechanics" in Mechanical, Aeronautical and Chemical Engineering, University of Palermo

RESEARCH TOPICS (selected):

- Constitutive modeling of elastic-plastic and no-tension materials
- Dynamic and stochastic analysis
- Structural and damage identification
- Analysis of structures with singularities: static, dynamic and stability
- Dynamic stability under conservative and non conservative forces
- Tensile instability
- Masonry structures modeling and seismic vulnerability assessment

INVITED PRESENTATIONS AT INTERNATIONAL CONFERENCES


SCIENTIFIC COMMITTEE OF INTERNATIONAL CONFERENCES


17. UBERTINI Francesco

PERSONAL WEB PAGE: www.unibo.it/sitoweb/francesco.ubertini/en
RESEARCH GROUP WEB PAGE: www.dicam.unibo.it/it/Ricerca/Progetti-e-attivita/Strutture/index.html
EMAIL: rettore@unibo.it; francesco.ubertini@unibo.it

NUMBER OF PUBLICATIONS AND DISSEMINATION:
73 Publications on International Journals
H-INDEX 13 in ISI Web of Knowledge, 15 in SCOPUS, 619 SCOPUS citations.

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
2007 – present: Full Professor, Mechanics of Solids and Structures (ICAR/08, 08/B2), University of Bologna.

PROFESSIONAL EXPERIENCE:
2001 – 2007: Associate Professor, Mechanics of Solids and Structures (ICAR/08, 08/B2), University of Bologna.
2000 – 2001: Assistant Professor, Mechanics of Solids and Structures (ICAR/08, 08/B2), University of Bologna.

EDUCATION:
1994: Bachelor degree in Civil Engineering cum laude, University of Bologna.

COMMITTEES AND PROFESSIONAL ACTIVITIES (selection of):
2012 – 2015: Member of the Academic Senate, University of Bologna.
2010 – 2015: Head of the Department of Civil, Chemical, Environmental and Materials Engineering (DICAM), University of Bologna (www.dicam.unibo.it).
2008 – 2010: Director of the 2nd level Master in Engineering management of risk induced by natural hazards, University of Bologna.
Ministero dell’Istruzione dell’Università e della Ricerca

MINISTERO DELL’ISTRUZIONE, DELL’UNIVERSITÀ E DELLA RICERCA

BANDO 2015

2008 – present: Tutor of Collegio Superiore, University of Bologna (www.collegio.unibo.it).
2007 – 2010: Head of Department of Structural, Transport, Hydraulic, Survey and Territory Engineering (DISTART), University of Bologna.
2006 – 2013: Member of the Executive Council of the Italian Group of Computational Mechanics (GIMC), AIMETA (www.aimeta.it).
2003 – 2007: Head of the Laboratory of Computational Mechanics (LAMC), DISTART, University of Bologna.
2002 – present: Faculty member of the PhD Program in Civil, Chemical, Environmental and Materials Engineering, University of Bologna.

CURRENT FUNDINGS FOR THE RESEARCH:
2014 – 2016: RIGERS – Rigenerazione della città: edifici e reti intelligenti, participant, national grant Smart Cities and Communities.

PAST FUNDINGS FOR THE RESEARCH (selection of):
2012 – 2013: Robotraining, coordinator, national grant M.I.S.E.-ICE-CRUI.

CONSULTING ACTIVITIES (selection of):
2013: Analysis of the structural behavior of cold-formed beams, funded by LINDAB S.A.
2012: Evaluation of the structural safety of Ferrari plant ex production line for auto vehicles, funded by Ferrari spa.
2011: On the influence of geometric nonlinearities, warping and cross-section distortion in the structural analysis of cold-formed beams, funded by LINDAB S.A.

MEMBER OF THE EDITORIAL BOARD OF INTERNATIONAL JOURNALS:
Mathematical Problems in Engineering
Curved and Layered Structures
Current Advances in Civil Engineering
Open Journal of Civil Engineering
Journal of Civil Engineering and Construction Technology
JP Journal of Solids and Structures

TEACHING ACTIVITIES (selection of):
Mechanics of Solids and Structures, Bachelor of Science in Civil Engineering.
Advanced Structural Mechanics, International Master Course in Civil Engineering.
Fracture Mechanics and Fatigue, 2nd level Master Course in Design of Oil&Gas plant.

RESEARCH TOPICS (selection of):
• Numerical modeling and structural analysis
• Environmental aging and structural decay
• Historical and archeological structures
• Structural monitoring and diagnostic
• Smart structures and innovative materials
• Fluid-structure interaction

ORGANIZATION OF NATIONAL AND INTERNATIONAL CONFERENCES (selection of):

SCIENTIFIC COMMITTEE OF NATIONAL AND INTERNATIONAL CONFERENCES (selection of):
2009: member of the Scientific Committee of 3° National Congress of MEnchanics of Masonry Structures Strengthened with Composite Materials – MuRiCo 3 (Venezia, April 1-3, 2009)

18. TARANTINO Angelo Marcello
CURRICULUM VITAE

Prof. Angelo Marcello TARANTINO

PERSONAL WEB PAGE:
http://personale.unimore.it/rubrica/insegnamenti/tarant.

RESEARCH GROUP WEB PAGE:
http://www.crict.unimore.it
Director of the Research interdepartmental center for constructions and environment, Crict-Unimore,

EMAIL: angelomarcello.tarantino@unimore.it

NUMBER OF PUBLICATIONS AND DISSEMINATION:
56 Publications on International Refereed Journals
H-INDEX 10 in ISI Web of Knowledge, 10 in SCOPUS, 428 SCOPUS citations, 54 citations for the most cited paper.

CURRENT ACADEMIC POSITION AND AFFILIATIONS:
2004-present Full Professor of "Scienza delle Costruzioni" (SSD ICAR/08), University of Modena and Reggio Emilia;
2007-present Director of the School of Civil Engineering at the University of the San Marino Republic.

A. GENERAL
Born on April 25, 1960 in Palermo (Italy).
November 2, 1985, he was graduated in civil engineering from the University of Ancona, Italy.
March 1987, he was admitted to the PhD in Structural Engineering at the University of Florence, Italy, and supports the final examination on October 17, 1990, with a thesis entitled "Applications of the theory of fracture propagation of seismic waves," with tutors Professors Giovanni Menditto and Piero Villaggio.
He was selected in a competition for PhDs of the European community for a Research Fellowship in the program: Human capital and mobility - Commission of the European Communities, HCM n. ERB CHBG CT 920 061, october 1994 - march 1995, Besancon, France.
November 22, 1995, he is assistant professor at the Faculty of Engineering, University of Ancona.
With italian D.M. August 6, 1998, he was proclaimed the winner, with a unanimous judgment, of the national competition for associate professor, and on November 1998 he took the service at the Faculty of Engineering of the University of Modena and Reggio Emilia.
With Rector's Decree no. 447 of 18 May 2001, he was proclaimed the winner of the competition for full professor at the Faculty of Engineering of the University of Modena and Reggio Emilia.
Since 2004 he is referent of the degree courses in Civil Engineering and Building Engineering at the Military Academy of Modena.
Since 2007 he is the Director of the School in Civil Engineering at the University of the San Marino Republic.
On November 29, 2008, he was elected President of the Degree Course in Civil Engineering at the University of Modena and Reggio Emilia.

B. TEACHING
In the period 1985-1988, Prof. Tarantino has taught at the Institute of Science and Technology of Construction at the Ancona University, collaborating mainly to the course of “Scienza delle costruzioni”.
Since 1988 he is teacher of 'Scienza delle Costruzioni' (9 credits) and Theory of Elasticity (9 credits) for undergraduate and master degree in Civil Engineering at the University of Modena and Reggio Emilia.

Since 2007 Prof. Tarantino holds the same teachings at the University of Rupubblica of San Marino.

He has conducted research and study abroad (Northwestern University, Evanston, USA 1986; Besançon, Université de Franche-Comté, France 1995; University College Dublin, Ireland in 1997 and 1999, Université Lyon, France in 1998, etc.).

C. RESEARCH

The entire research carried out by Prof. Tarantino can be subdivided into the following topics: viscoelasticity; fracture mechanics and dynamic propagation of cracks; bifurcation theory, nonlinear dynamics and chaos; piezoelectricity and magnetoelasticity; contact problems; equilibrium, bifurcation and stability in finite elasticity; fiber-reinforced concrete and earthquake engineering.

He is author of about 85 scientific works, including 60 international journals, written mainly at a single name, and of four textbooks and two international patents.

He was reviewer of scientific papers for several international journals, including:

- Quarterly Journal of Mechanics and Applied Mathematics;
- International Journal of Solids and Structures;
- International Journal for Numerical Methods in Engineering;
- ACI Journal;
- Structural Engineering and Mechanics;
- Journal of Elasticity;
- ASCE Journal;
- International Journal of Engineering Science;
- International Journal of Non-Linear Mechanics;
- IMA Journal of Applied Mathematics;
- Engineering Fracture Mechanics;
- Mathematical Reviews;
- International Journal of Damage Mechanics;
- Advances in Mathematical Physics;
- Mathematics and Mechanics of Solids;
- Journal of Engineering Mechanics, ASCE.

He was reviewer of the research projects on behalf of the Italian Ministry of Education (Prin, FIRB, in Future Research) and the Ministry of Economic Development (Fit).

Patents

He is inventor of the patent no. BO2500774 filed on 28/11/2005, relating to polypropylene fibers for fiber-reinforced structural concrete. Next international patent no. 06124764.9-2303.

Research Projects and Conventions

- Research projects funded by Miur ex 60%.
- Workshop Emilia - Laborator Rubes on networks of expertise in mechanics - funded by POR 2000-2006, ESF Ob. 3 of the Emilia-Romagna Region.
- Cofin 2004 Mathematical models for the dynamics of DNA.
- PRRITTT Measure 3.1 Action A Industrial research projects and pre-competitive development specified in the notice of 7:07:08 DGR n.1043 / 2008. Project: Polymer fibers intended for reinforcing gallery, Wires & Forms Ltd.
- Research contract in May 2010. In the field of seismic risk reduction in the Modena area. City of Modena.
- Contract Research October 2012. Mechanical characterization of an aggregate composed of quartz sands and...
epoxy resins. Biodesign LTD.

- Research contract in February 2012. Evaluation of the seismic vulnerability of the building located in Street Fonteraso 15 - Modena, STB tributaries Po river. Region ER.
- Research contract in December 2014. Assessment of seismic vulnerability of the building in Street Santa Franca 38 - Piacenza, STB tributaries Po river. Region ER.

### 3 – Principal scientific publications of PI


4 - Principal scientific publications of associated investigators

1. **TROVALUSCI Patrizia**


17. P. M. MARIANO, P. TROVALUSCI (1999). Constitutive relations for elastic microcracked bodies:


2. MAIORANA Carmelo


3. CHIAIA Bernardino


4. FEO Luciano


19. ASCIONE L., FEO L. (2000). Modeling of Composite/Concrete Interface of R/C Beams Strengthened with Composite Laminates. COMPOSITES. PART B, ENGINEERING, vol. 31 - Iss.6-7,
5. REGA Giuseppe


6. FALSONE Giovanni


7. CARPINTERI Andrea


19. LI-PING GUO, ANDREA CARPINTERI, RICCARDO RONCELLA, ANDREA SPAGNOLI, WEI SUN, VANTADORI S. (2009). Fatigue damage of high performance concrete through a 2D mesoscopic
8. TALIERCIO Alberto


9. **GUSELLA Vittorio**


10. **BRUNO Domenico**


11. ROSATI Luciano


12. MAROTTI DE SCIARRA Francesco


13. CECCHI Antonella


14. ZAVARISE Giorgio


15. RIZZI Nicola Luigi


17. Rizzi N., Tatone & A. Symbolic manipulations in buckling and postbuckling anal- ysis. COMPUTERS & STRUCTURES, vol. 21, p. 691-700, ISSN: 0045-7949 - Articolo in rivista


16. CADDEMI Salvatore


7. Caddemi S, Caliò I, Cannizzaro F (2013). Closed-form solutions for stepped Timoshenko beams with internal singularities and along-axis external supports. ARCHIVE OF APPLIED MECHANICS,
UBERTINI Francesco


17. UBERTINI Francesco


8. Auricchio F., Bonetti E., Scalet G, Ubertini F. (2014). Theoretical and numerical modeling of shape...

18. TARANTINO Angelo Marcello


5 – Main staff involved, highlighting the time commitment expected

List of the Research Units

Unit 1 - DI PAOLA Mario

Personnel of the research unit

<table>
<thead>
<tr>
<th>nº</th>
<th>Surname Name</th>
<th>Category</th>
<th>University/Research Institution</th>
<th>E-mail address</th>
<th>Months/person expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DI PAOLA Mario</td>
<td>Professore Ordinario</td>
<td>Università degli Studi di PALERMO</td>
<td><a href="mailto:mario.dipaola@unipa.it">mario.dipaola@unipa.it</a> (adesione completata il 24/12/2015)</td>
<td>0,6</td>
</tr>
<tr>
<td>2</td>
<td>PIRROTTA Antonina</td>
<td>Professore Associato confermato</td>
<td>Università degli Studi di PALERMO</td>
<td><a href="mailto:antonina.pirrotta@unipa.it">antonina.pirrotta@unipa.it</a> (adesione completata il 02/12/2015)</td>
<td>0,5</td>
</tr>
<tr>
<td>3</td>
<td>COTTONE Giulio</td>
<td>Ricercatore a t.d. - t.pieno (art. 24 c.3-a L. 240/10)</td>
<td>Università degli Studi di PALERMO</td>
<td><a href="mailto:giulio.cottone@tum.de">giulio.cottone@tum.de</a> (adesione completata il 02/12/2015)</td>
<td>3,0</td>
</tr>
<tr>
<td>4</td>
<td>FAILLA Giuseppe</td>
<td>Professore Associato (L. 240/10)</td>
<td>Università degli Studi &quot;Mediterranea&quot; di REGGIO CALABRIA</td>
<td><a href="mailto:giuseppe.failla@unirc.it">giuseppe.failla@unirc.it</a> (adesione completata il 10/12/2015)</td>
<td>0,1</td>
</tr>
<tr>
<td>5</td>
<td>TESORIERE Giovanni</td>
<td>Professore Ordinario</td>
<td>UKE - Università Kore di ENNA</td>
<td><a href="mailto:giovanni.tesoriere@unikore.it">giovanni.tesoriere@unikore.it</a> (adesione completata il 05/01/2016)</td>
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<td>6</td>
<td>DI LORENZO Salvatore</td>
<td>Dottorando</td>
<td>Università degli Studi di PALERMO</td>
<td><a href="mailto:salvatore.dilorenzo@unipa.it">salvatore.dilorenzo@unipa.it</a> (adesione completata il 12/01/2016)</td>
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Possible sub-unit

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### Unit 2 - TROVALUSCI Patrizia

**Personnel of the research unit**

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<td>TROVALUSCI Patrizia</td>
<td>Professore Associato confermato</td>
<td>Università degli Studi di ROMA &quot;La Sapienza&quot;</td>
<td><a href="mailto:patrizia.trovalusci@uniroma1.it">patrizia.trovalusci@uniroma1.it</a> (adesione completata il 14/12/2015)</td>
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<td>MASIANI Renato</td>
<td>Professore Ordinario</td>
<td>Università degli Studi di ROMA &quot;La Sapienza&quot;</td>
<td><a href="mailto:renato.masiani@uniroma1.it">renato.masiani@uniroma1.it</a> (adesione completata il 07/01/2016)</td>
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<td>ADDESI Daniela</td>
<td>Ricercatore confermato</td>
<td>Università degli Studi di ROMA &quot;La Sapienza&quot;</td>
<td><a href="mailto:daniela.addessi@uniroma1.it">daniela.addessi@uniroma1.it</a> (adesione completata il 05/01/2016)</td>
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<td>LIBERATORE Laura</td>
<td>Ricercatore confermato</td>
<td>Università degli Studi di ROMA &quot;La Sapienza&quot;</td>
<td><a href="mailto:Laura.Liberatore@uniroma1.it">Laura.Liberatore@uniroma1.it</a> (adesione completata il 04/01/2016)</td>
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<td>DI RE Paolo</td>
<td>Dottorando</td>
<td>Università degli Studi di ROMA &quot;La Sapienza&quot;</td>
<td><a href="mailto:paolo.dire@uniroma1.it">paolo.dire@uniroma1.it</a> (adesione completata il 08/01/2016)</td>
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<td>SBARDELLA Francesca</td>
<td>Dottorando</td>
<td>Università degli Studi di ROMA &quot;La Sapienza&quot;</td>
<td><a href="mailto:francesca.sbardella@yahoo.it">francesca.sbardella@yahoo.it</a> (adesione completata il 05/01/2016)</td>
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### Unit 3 - MAIORANA Carmelo

**Personnel of the research unit**

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<td>Professore Ordinario</td>
<td>Università degli Studi di PADOVA</td>
<td><a href="mailto:carmelo.maiorana@dicea.unipd.it">carmelo.maiorana@dicea.unipd.it</a> (adesione completata il 09/12/2015)</td>
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<td>SALOMONI Valentina</td>
<td>Ricercatore confermato</td>
<td>Università degli Studi di PADOVA</td>
<td><a href="mailto:valentina.salomoni@unipd.it">valentina.salomoni@unipd.it</a> (adesione completata il 07/01/2016)</td>
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<td>Università degli Studi di PADOVA</td>
<td><a href="mailto:francesco.pesavento@dicea.unipd.it">francesco.pesavento@dicea.unipd.it</a> (adesione completata il 05/01/2016)</td>
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<td>POMARO Beatrice</td>
<td>Assegnista</td>
<td>Università degli Studi di PADOVA</td>
<td><a href="mailto:beatrice.pomaro@dicea.unipd.it">beatrice.pomaro@dicea.unipd.it</a> (adesione completata il 09/01/2016)</td>
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<td>XOTTA Giovanna</td>
<td>Assegnista</td>
<td>Università degli Studi di PADOVA</td>
<td><a href="mailto:giovanna.xotta@dicea.unipd.it">giovanna.xotta@dicea.unipd.it</a> (adesione completata il 11/01/2016)</td>
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<td>BOSO Daniela</td>
<td>Professore Associato confermato</td>
<td>Università degli Studi di PADOVA</td>
<td><a href="mailto:daniela.boso@unipd.it">daniela.boso@unipd.it</a> (adesione completata il 11/01/2016)</td>
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### Unit 4 - CHIAIA Bernardino

**Personnel of the research unit**

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<td>CHIAIA Bernardino</td>
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<td><a href="mailto:bernardino.chiaia@polito.it">bernardino.chiaia@polito.it</a> (adesione completata il 13/12/2015)</td>
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<td>2</td>
<td>FANTILLI Alessandro Pasquale</td>
<td>Professore Associato (L. 240/10)</td>
<td>Politecnico di TORINO</td>
<td><a href="mailto:alessandro.fantilli@polito.it">alessandro.fantilli@polito.it</a> (adesione completata il 05/01/2016)</td>
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<td>GORINO Andrea</td>
<td>Dottorando</td>
<td>Politecnico di TORINO</td>
<td><a href="mailto:andrea.gorino@polito.it">andrea.gorino@polito.it</a> (adesione completata il 11/01/2016)</td>
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<td>4</td>
<td>VENTURA Antonio</td>
<td>Dottorando</td>
<td>Politecnico di TORINO</td>
<td><a href="mailto:antonio.ventura@polito.it">antonio.ventura@polito.it</a> (adesione completata il 10/01/2016)</td>
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### Unit 5 - FEO Luciano

**Personnel of the research unit**

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<td>2</td>
<td>ASCIONE Francesco</td>
<td>Ricercatore confermato</td>
<td>Università degli Studi di SALERNO</td>
<td><a href="mailto:fascione@unisa.it">fascione@unisa.it</a> (adesione completata il 05/01/2016)</td>
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<td>3</td>
<td>BERARDI Valentina Paolo</td>
<td>Ricercatore confermato</td>
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<td><a href="mailto:berardi@unisa.it">berardi@unisa.it</a> (adesione completata il 04/01/2016)</td>
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<td>4</td>
<td>MANCUSI Geminiano</td>
<td>Ricercatore confermato</td>
<td>Università degli Studi di SALERNO</td>
<td><a href="mailto:g.mancusi@unisa.it">g.mancusi@unisa.it</a> (adesione completata il 05/01/2016)</td>
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<td>REALFONZO Roberto</td>
<td>Professore Associato confermato</td>
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<td>6</td>
<td>PENNA Rosa</td>
<td>Assegnista</td>
<td>Università degli Studi di SALERNO</td>
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### Unit 6 - REGA Giuseppe

**Personnel of the research unit**

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<td><a href="mailto:giuseppe.rega@uniroma1.it">giuseppe.rega@uniroma1.it</a> (adesione completata il 08/01/2016)</td>
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<td>CAPECCHI Danilo</td>
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<td>Università degli Studi di ROMA &quot;La Sapienza&quot;</td>
<td><a href="mailto:danilo.capecchi@uniroma1.it">danilo.capecchi@uniroma1.it</a> (adesione completata il 08/01/2016)</td>
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<td>3</td>
<td>BERNARDINI Davide</td>
<td>Professore Associato (L. 240/10)</td>
<td>Università degli Studi di ROMA &quot;La Sapienza&quot;</td>
<td><a href="mailto:davide.bernardini@uniroma1.it">davide.bernardini@uniroma1.it</a> (adesione completata il 08/01/2016)</td>
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<td>SAETTA Eduardo</td>
<td>Assegnista</td>
<td>Università degli Studi di ROMA &quot;La Sapienza&quot;</td>
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<td>SETTIMI</td>
<td>Assegnista</td>
<td>Università degli Studi di ROMA</td>
<td><a href="mailto:valeria.settimi@uniroma1.it">valeria.settimi@uniroma1.it</a></td>
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### Unit 7 - FALSONE Giovanni

**Personnel of the research unit**

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<td>FALSONE Giovanni</td>
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<td>Università degli Studi di MESSINA</td>
<td><a href="mailto:gfalsone@ingegneria.unime.it">gfalsone@ingegneria.unime.it</a></td>
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<td>2.</td>
<td>SANTORO Roberta</td>
<td>Ricercatore a t.d. (art. 24 c.3-b L. 240/10)</td>
<td>Università degli Studi di MESSINA</td>
<td><a href="mailto:roberta.santoro@unime.it">roberta.santoro@unime.it</a></td>
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<td>3.</td>
<td>FALLIANO Devid</td>
<td>Dottorando</td>
<td>Università degli Studi di MESSINA</td>
<td><a href="mailto:devidfalliano@gmail.com">devidfalliano@gmail.com</a></td>
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### Unit 8 - CARPINTERI Andrea

**Personnel of the research unit**

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<td>VANTADORI Sabrina</td>
<td>Professore Associato (L. 240/10)</td>
<td>Università degli Studi di PARMA</td>
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<td>FORTESE Giovanni</td>
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### Unit 9 - TALIERCIO Alberto

**Personnel of the research unit**

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<td>2.</td>
<td>NOVATI Giorgio</td>
<td>Professore Ordinario</td>
<td>Politecnico di MILANO</td>
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<td>3.</td>
<td>BRUGGI Matteo</td>
<td>Ricercatore confermato</td>
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### Unit 10 - GUSELLA Vittorio

**Personnel of the research unit**

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<td>BRUNO Domenico</td>
<td>Professore Ordinario</td>
<td>Università della CALABRIA</td>
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<td>GRECO Fabrizio</td>
<td>Professore Associato confermato</td>
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<td>4.</td>
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**Unit 12 - ROSATI Luciano**

**Personnel of the research unit**

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<td>ROSATI Luciano</td>
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<td><a href="mailto:rosati@unina.it">rosati@unina.it</a> (adesione completata il 15/12/2015)</td>
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<td>ZUCCARO Giulio</td>
<td>Professore Associato confermato</td>
<td>Università degli Studi di NAPOLI &quot;Federico II&quot;</td>
<td><a href="mailto:zuccaro@unina.it">zuccaro@unina.it</a> (adesione completata il 05/01/2016)</td>
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<tr>
<td>3.</td>
<td>DE ANGELIS Fabio</td>
<td>Ricercatore confermato</td>
<td>Università degli Studi di NAPOLI &quot;Federico II&quot;</td>
<td><a href="mailto:fabio.deangelis@unina.it">fabio.deangelis@unina.it</a> (adesione completata il 06/01/2016)</td>
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<td>MARMO Francesco</td>
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<td>Università degli Studi di NAPOLI &quot;Federico II&quot;</td>
<td><a href="mailto:f.marmo@unina.it">f.marmo@unina.it</a> (adesione completata il 05/01/2016)</td>
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**Unit 13 - MAROTTI DE SCIARRA Francesco**

**Personnel of the research unit**

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<td><a href="mailto:marotti@unina.it">marotti@unina.it</a> (adesione completata il 12/12/2015)</td>
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2. DIACO Marina  
Ricercatore confermato  
Università degli Studi di NAPOLI "Federico II"  
diac@unina.it (adesione completata il 07/01/2016)  
0,4

3. GESUALDO Antonio  
Ricercatore confermato  
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4. MODANO Mariano  
Ricercatore confermato  
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0,3

5. FRADDOSIO Aquilando  
Ricercatore confermato  
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a.fraddosio@poliba.it (adesione completata il 12/01/2016)  
0,1

6. FOTI Pilade  
Ricercatore confermato  
Politecnico di BARI  
p.foti@poliba.it (adesione completata il 12/01/2016)  
0,1

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**Unit 14 - CECCHI Antonella**

**Personnel of the research unit**

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<td><a href="mailto:cecchi@iuav.it">cecchi@iuav.it</a> (adesione completata il 09/12/2015)</td>
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<td>2.</td>
<td>TREVISANI Sebastiano</td>
<td>Ricercatore confermato</td>
<td>Università IUAV di VENEZIA</td>
<td><a href="mailto:strevisani@iuav.it">strevisani@iuav.it</a> (adesione completata il 05/01/2016)</td>
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<tr>
<td>3.</td>
<td>BARALDI Daniele</td>
<td>Ricercatore a t.d. - t pieno (art. 24 c.3-a L. 240/10)</td>
<td>Università IUAV di VENEZIA</td>
<td><a href="mailto:daniele.baraldi@iuav.it">daniele.baraldi@iuav.it</a> (adesione completata il 08/01/2016)</td>
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<td>4.</td>
<td>PAVLOVIC Milorad</td>
<td>Dottorando</td>
<td>Università IUAV di VENEZIA</td>
<td><a href="mailto:m.pavlovic@stud.iuav.it">m.pavlovic@stud.iuav.it</a> (adesione completata il 10/01/2016)</td>
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<td>5.</td>
<td>DE NARDI Cristina</td>
<td>Dottorando</td>
<td>Università IUAV di VENEZIA</td>
<td><a href="mailto:cristinadenardi@iuav.it">cristinadenardi@iuav.it</a> (adesione completata il 10/01/2016)</td>
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<td>6.</td>
<td>DE CARVALHO Claudia</td>
<td>Dottorando</td>
<td>Università IUAV di VENEZIA</td>
<td><a href="mailto:decarvalho@iuav.it">decarvalho@iuav.it</a> (adesione completata il 09/01/2016)</td>
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**Unit 15 - ZAVARISE Giorgio**

**Personnel of the research unit**

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<tr>
<th>n°</th>
<th>Surname Name</th>
<th>Category</th>
<th>University/Research Institution</th>
<th>E-mail address</th>
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<tr>
<td>1.</td>
<td>ZAVARISE Giorgio</td>
<td>Professore Ordinario</td>
<td>Università del SALENTO</td>
<td><a href="mailto:giorgio.zavarise@unisaletno.it">giorgio.zavarise@unisaletno.it</a> (adesione completata il 15/12/2015)</td>
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<tr>
<td>2.</td>
<td>ALESSANDRI Claudio</td>
<td>Professore Ordinario</td>
<td>Università degli Studi di FERRARA</td>
<td><a href="mailto:claudio.alessandri@unife.it">claudio.alessandri@unife.it</a> (adesione completata il 10/01/2016)</td>
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<td>3.</td>
<td>MALLARDO Vincenzo</td>
<td>Ricercatore confermato</td>
<td>Università degli Studi di FERRARA</td>
<td><a href="mailto:mlv@unife.it">mlv@unife.it</a> (adesione completata il 10/01/2016)</td>
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<td>4.</td>
<td>PEPE Marco</td>
<td>Assegnista</td>
<td>Università del SALENTO</td>
<td><a href="mailto:m.pepe@unisaletno.it">m.pepe@unisaletno.it</a> (adesione completata il 08/01/2016)</td>
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<td>5.</td>
<td>VERGALLO Roberto</td>
<td>Assegnista</td>
<td>Università del SALENTO</td>
<td><a href="mailto:roberto.vergallo@unisaletno.it">roberto.vergallo@unisaletno.it</a> (adesione completata il 11/01/2016)</td>
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<td>6.</td>
<td>GIANGRECO Marcello</td>
<td>Assegnista</td>
<td>Università del SALENTO</td>
<td><a href="mailto:mgiangreco@libero.it">mgiangreco@libero.it</a> (adesione completata il</td>
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### Unit 16 - RIZZI Nicola Luigi

**Personnel of the research unit**

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<td>1.</td>
<td>RIZZI Nicola Luigi</td>
<td>Professore Ordinario</td>
<td>Università degli Studi ROMA TRE</td>
<td><a href="mailto:nlr@uniroma3.it">nlr@uniroma3.it</a> (adesione completata il 13/12/2015)</td>
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<td>SALERNO Ginevra</td>
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<td>Università degli Studi ROMA TRE</td>
<td><a href="mailto:ginevra.salerno@uniroma3.it">ginevra.salerno@uniroma3.it</a> (adesione completata il 05/01/2016)</td>
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<td>3.</td>
<td>FORMICA Giovanni</td>
<td>Professore Associato (L. 240/10)</td>
<td>Università degli Studi ROMA TRE</td>
<td><a href="mailto:formica@uniroma3.it">formica@uniroma3.it</a> (adesione completata il 05/01/2016)</td>
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<tr>
<td>4.</td>
<td>GABRIELE Stefano</td>
<td>Ricercatore confermato</td>
<td>Università degli Studi ROMA TRE</td>
<td><a href="mailto:stefano.gabriele@uniroma3.it">stefano.gabriele@uniroma3.it</a> (adesione completata il 07/01/2016)</td>
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<td>5.</td>
<td>GARCEA Giovanni</td>
<td>Professore Associato confermato</td>
<td>Università della CALABRIA</td>
<td><a href="mailto:giovanni.garcea@unical.it">giovanni.garcea@unical.it</a> (adesione completata il 04/01/2016)</td>
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<td>6.</td>
<td>LEONETTI Leonardo</td>
<td>Ricercatore confermato</td>
<td>Università della CALABRIA</td>
<td><a href="mailto:leonardo.leonetti@unical.it">leonardo.leonetti@unical.it</a> (adesione completata il 04/01/2016)</td>
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### Unit 17 - CADDEMI Salvatore

**Personnel of the research unit**

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<td>1.</td>
<td>CADDEMI Salvatore</td>
<td>Professore Ordinario</td>
<td>Università degli Studi di CATANIA</td>
<td><a href="mailto:scaddemi@dica.unict.it">scaddemi@dica.unict.it</a> (adesione completata il 14/12/2015)</td>
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<td>2.</td>
<td>CALIO’ Ivo Domenico</td>
<td>Professore Associato confermato</td>
<td>Università degli Studi di CATANIA</td>
<td><a href="mailto:icalio@dica.unict.it">icalio@dica.unict.it</a> (adesione completata il 03/01/2016)</td>
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<td>3.</td>
<td>CASCIATI Sara</td>
<td>Professore Associato (L. 240/10)</td>
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<td><a href="mailto:saracasciati@msn.com">saracasciati@msn.com</a> (adesione completata il 02/01/2016)</td>
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<td>4.</td>
<td>GRECO Annalisa Maria</td>
<td>Professore Associato confermato</td>
<td>Università degli Studi di CATANIA</td>
<td><a href="mailto:agreco@dica.unict.it">agreco@dica.unict.it</a> (adesione completata il 04/01/2016)</td>
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<td>5.</td>
<td>IMPOLLONIA Nicola</td>
<td>Professore Associato confermato</td>
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<td><a href="mailto:nimpo@unict.it">nimpo@unict.it</a> (adesione completata il 02/01/2016)</td>
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<td>6.</td>
<td>CANNIZZARO Francesco</td>
<td>Assegnista</td>
<td>Università degli Studi di CATANIA</td>
<td><a href="mailto:francesco.cannizzaro@dica.unict.it">francesco.cannizzaro@dica.unict.it</a> (adesione completata il 08/01/2016)</td>
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### Unit 18 - UBERTINI Francesco

**Personnel of the research unit**

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<td>UBERTINI Francesco</td>
<td>Professore Ordinario</td>
<td>Università degli Studi di BOLOGNA</td>
<td><a href="mailto:francesco.ubertini@unibo.it">francesco.ubertini@unibo.it</a> (adesione completata il 07/01/2016)</td>
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</table>
2. DE MIRANDA Stefano
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   stefano.demiranda@unibo.it (adesione completata il 04/01/2016) 0,2

3. CARLONI Christian
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4. GENTILINI Cristina
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5. MOLARI Luisa
   Ricercatore confermato
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6. D’ALTRI Antonio Maria
   Dottorando
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   antoniomaria.daltri2@unibo.it (adesione completata il 08/01/2016) 24,0

__Unit 19 - TARANTINO Angelo Marcello__

Personnel of the research unit

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<tr>
<th>n°</th>
<th>Surname Name</th>
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<td>TARANTINO Angelo Marcello</td>
<td>Professore Ordinario</td>
<td>Università degli Studi di MODENA e REGGIO EMILIA</td>
<td><a href="mailto:angelomarcello.tarantino@unimore.it">angelomarcello.tarantino@unimore.it</a> (adesione completata il 13/12/2015)</td>
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<td>2</td>
<td>RADI Enrico</td>
<td>Professore Ordinario</td>
<td>Università degli Studi di MODENA e REGGIO EMILIA</td>
<td><a href="mailto:eradi@unimore.it">eradi@unimore.it</a> (adesione completata il 05/01/2016)</td>
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<td>3</td>
<td>ROYER CARFAGNI Gianni Furio Mario</td>
<td>Professore Ordinario</td>
<td>Università degli Studi di PARMA</td>
<td><a href="mailto:gianni.royer@unipr.it">gianni.royer@unipr.it</a> (adesione completata il 07/01/2016)</td>
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<td>4</td>
<td>DE TOMMASI Domenico</td>
<td>Professore Ordinario</td>
<td>Politecnico di BARI</td>
<td><a href="mailto:domenico.detommasi@poliba.it">domenico.detommasi@poliba.it</a> (adesione completata il 07/01/2016)</td>
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<td>5</td>
<td>NOBILI Andrea</td>
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<td>Università degli Studi di MODENA e REGGIO EMILIA</td>
<td><a href="mailto:andrea.nobili@unimore.it">andrea.nobili@unimore.it</a> (adesione completata il 05/01/2016)</td>
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6 - Major new contracts for staff specifically to recruit

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13. MAROTTI DE SCIARRA Francesco 0 1 0 3
14. CECCHI Antonella 0 1 0 12
15. ZAVARISE Giorgio 0 1 0 9
16. RIZZI Nicola Luigi 0 1 0 5
17. CADDEMI Salvatore 0 1 0 7
18. UBERTINI Francesco 0 1 0 12
19. TARANTINO Angelo Marcello 0 2 0 10

**Total** 0 24 0 173

7 - Declaration Upload

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