

Curriculum Vitae

Full name: **Ivano Benedetti**

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Outline. Since 2008, I am **Assistant Professor in Aerostructures** (Italian *Ricercatore*) at the University of Palermo (UniPa, Italy). I am currently a **Fulbright Visiting Scholar** at the Department of Mechanical Engineering of the McCormick School of Engineering of Northwestern University, IL, USA (Oct 2015 – March 2016). In December 2014 I **qualified for the Associate Professorship** according to the Italian regulations. From July 2011 to July 2013 I have been **Marie Curie Intra-European Research Fellow** at Imperial College London, where I worked on the development of a *three-dimensional multiscale model for intergranular degradation and failure in polycrystalline materials*.

Before the Marie Curie fellowship, within a framework of research cooperation with Prof. Aliabadi, I have benefited from various **research visits** to Imperial College, where I focused on subjects related to numerical modelling of solids and fracture mechanics problems.

In 2008, I was awarded my **PhD Degree in Aerospace Engineering** from the University of Pisa (Italy). During the PhD, I spent a research period (9 months), in 2006, in the Department of Aeronautics of ICL.

Before the PhD, I have been involved, since 2002, in several research activities at the Department of Aeronautics of the University of Palermo, where I had previously obtained my **Master's Degree in Aerospace Engineering** (Italian Laurea, five-year M.Eng. Degree) in 2001.

Research. My research focuses on numerical and computational modeling of materials and structures. I have published several research articles on subjects related to: *multiscale modelling; micromechanical modelling of polycrystalline materials; Boundary Element Method (BEM) for elastic crack problems; fast BEM solvers based on the use of Hierarchical Matrices; modelling of piezoelectric materials*. Currently my research is focusing on *multiscale modelling of damage and failure in polycrystalline materials*.

Teaching. I am Lecturer in Aerostructures at the University of Palermo and I currently teach the class of *General design of aircrafts and systems for the Master Course in Aerospace Engineering*. In the same university, before becoming Lecturer, I have also taught some other classes as Contract Professor for the *Aerospace M.Eng. Course*.

Affiliations. Since 2013 I am member of the International Scientific Committee of the *International Conference on Damage and Fracture Mechanics* and member of the Scientific Advisory Committee of the *International Conference on Boundary Element and Meshless techniques*. Since 2012, I am member of the Scientific Committee of the *PhD in Civil, Environmental, Aerospace and Materials Engineering* of the University of Palermo. Since 2009, I am member of the Scientific Board of the PhD in *Technology and Management of Aeronautical Infrastructures* of the University of Enna (Italy). I am member of the *Marie Curie Alumni Association*.

Service. I have served as **referee** for several international journals (see below).

A complete stand-alone academic and professional CV is provided in the following pages.

Education and training

Jan 2005 Dec 2007	<p>PhD in Aerospace Engineering (Curriculum Structures), Department of Aerospace Engineering (DIA), University of Pisa, Italy.</p> <p>The PhD was aimed at the development of a fast numerical code for 3D Fracture Mechanics, for possible use in the analysis of Structural Health Monitoring systems. Main research topics were: <i>Mechanics of Solids and Structures; Dynamics of Structures; Fracture Mechanics; Mechanics of Composite Materials; Piezoelectric Materials, Structural Health Monitoring; Numerical Methods in Engineering; Finite Element Method; Boundary Element Method; Fast Solvers for Boundary Element Method</i>.</p> <p>Awarded in December 2008 defending the thesis "A fast Hierarchical 3D Dual Boundary Element Method for the analysis of damaged structures with bonded piezoelectric sensors". Supervisors: Prof. Cavallini (Pisa), Prof. Davi (Palermo).</p>
Mar 2006 Nov 2006 (9 months)	<p>Department of Aeronautics, Imperial College London (ICL), UK.</p> <p>As part of the PhD, I spent 9 months at ICL working on the development and implementation of a <i>Fast Dual Boundary Element Method for 3D Fracture Mechanics based on the use of Hierarchical Matrices</i>, under the supervision of Prof. M.H. Aliabadi.</p>
1995 - 2001	<p>Aerospace Engineering Master's degree, Department of Aerospace Engineering, University of Palermo (5 year Italian Engineering Degree – Laurea quinquennale Vecchio Ordinamento).</p>

Graduation thesis: “ <i>Dynamic stability of elastic structures under stochastic loads</i> ”; Supervisor Prof. M. Di Paola. Awarded in July 2001. Score: 110/110 summa cum laude.

Complementary training

- **June 21-22, 2012.** I took part in the course ***Managing your first research group*** organized by the *Postdoc Development Centre* at Imperial College London. The course is addressed at identifying key issues arising in the transition from working in a project with others to managing one’s own independently funded research project and at introducing key aspects for the successful research management. The course is interactive and based on real problems encountered by real research groups. Participants on this course are new or aspiring Principal Investigators. Key subjects are: identifying personal strengths, weaknesses, values and motivations; understanding and exploring personal leadership styles; envisioning and realizing a direction and profile for a research lab; prioritizing and managing time successfully.
- **July 10-11, 2012. Marie Curie Actions Conference 2012** at the Convention Centre Dublin. The Conference provided an exceptional networking opportunity for meeting other Marie Curie Fellows coming from Europe and overseas. It also provided a forum for discussing various research and research funding related topics. Several workshops and seminars on themes particularly relevant for my level of career were organized: ***Publishing and patenting*** and ***Communicating science effectively*** were among the seminars that I took part in. I also took part in the workshop ***How to write a competitive Marie Curie proposal*** by Dr. Sean McCarthy of Hyperion Ltd.

Research experience and positions

Oct 2015 March 2016	Fulbright Visiting Scholar in the Department of Mechanical Engineering of the McCormick School of Engineering of Northwestern University, Evanston IL, USA. Project: <i>Multiscale modelling of biological and bio-inspired damage-resistant materials</i> . Fulbright Commission Contribution: 9000\$ + 1500 €.
July 2011 July 2013 (24 months)	Marie Curie Intra European Fellow in the Department of Aeronautics at Imperial College London. Call: FP7-PEOPLE-2010-IEF; Project: <i>Three-dimensional Multiscale model for material degradation and fracture in polycrystalline materials</i> ; Proposal number: 274161; Grant Agreement: PIEF-GA-2010-274161; EU contribution: 210,092 euros. The research was devoted to the formulation and implementation of a 3D multiscale cohesive-frictional grain-boundary model for multiscale analysis of degradation and failure in polycrystalline materials. During the fellowship, I have benefited of scientific, technological and complementary training at the host Institution, Imperial College London. The targets of the project have been achieved and the results have been disseminated in several international conferences and research articles (see list of publications). The project has been flagged as a success story by the EU Commission. Web: http://cordis.europa.eu/result/rcn/148335_en.html
Jan 2011 June 2011 (6 months)	Research Associate , Department of Aeronautics, Imperial College London . Project: <i>A 3D pre-processor for polycrystalline microstructures</i> . The project was supported by Prof. Aliabadi’s research funds and, after initial feedback from the above Marie Curie IEF application, it was aimed at the development of a tool for generation of artificial 3D microstructures.
Feb 2009 Apr 2009 (3 months)	Research Assistant , Department of Aeronautics, Imperial College London . Project: <i>Development of a fast BEM solver for the analysis of elastodynamic crack problems</i> . The work led to the development of a computer code, to a journal publication and was presented in an international conference (see publications). The project was funded within the European research project SEAT (Smart tEchnologies for stress free Air Travel) AST5-CT-2006-030958.
Since May 2008	Lecturer in Aerostructures (Italian Ricercatore, permanent position) in the Department of Structural, Aerospace and Geotechnical Engineering of the University of Palermo .
Aug 2007 May 2008	Research Assistant , Department of Aeronautics, University of Palermo . Project: “ <i>Development of numerical methods for the analysis of structural health monitoring systems</i> ”. Academic supervisor: Prof. A. Milazzo.
Jan 2005 Dec 2007	PhD in Aerospace Engineering (Curriculum Structures), Department of Aerospace Engineering, University of Pisa , Italy. (See above for description).
May 2004 Apr 2005	Research Assistant , Department of Aeronautics, University of Palermo . Project: “ <i>Three-dimensional modelling and analysis of smart piezoelectric composite structures</i> ”. Academic supervisor: Prof. G. Davi.
Jan 2003 Dec 2003	Research Assistant , Department of Aeronautics, University of Palermo . Project: “ <i>Three-dimensional modelling and analysis of smart piezoelectric composite structures</i> ”.

	Academic supervisor: Prof. G. Davì.
Mar 2002 Dec 2002	Postgraduate Scholarship , Department of Aeronautics, University of Palermo . Project: “ <i>Fracture Mechanics and damage modelling in piezoelectric materials</i> ”. Sponsor: Italian Space Agency (ASI). Academic supervisor: Prof. G. Davì.

Note : between January and May 2004 I have been involved in teaching activities at the UniPa (see below).

Projects.

- I am currently recipient of the Fulbright Visiting Scholarship for the project **Multiscale modelling of biological and bio-inspired damage-resistant materials**. **Call**: Fulbright Visiting Scholarship 2015; **Host**: Northwestern University, Evanston, IL, USA.
- I was recipient of a Marie Curie Intra European Fellowship with the project “*Three-dimensional Multiscale model for material degradation and fracture in polycrystalline materials*” (**Call**: FP7-PEOPLE-2010-IEF; **Proposal number**: 274161; **Grant Agreement**: PIEF-GA-2010-274161, **Host**: Imperial College London).
- I participated in the Italian Research Project of National Interest **PRIN 2007** (*Structural Integrity Monitoring for Aerospace Structures*; funding 290Keuros). PRIN projects are funded by the Italian Ministry of Education, University and Research and see the participation of various Research Units from different Italian universities. The groups are coordinated by a national coordinator. I took part in the definition and development of the specific task of my Research Unit (*Development of numerical models for Structural Health Monitoring Systems*).

Teaching experience

Since 2008	Lecturer in Aerospace Structures and Aerospace Materials and Substitute Professor of <i>Aeronautical Devices and Systems</i> at the University of Palermo. I currently teach the class of General design of aircrafts and systems .
Feb 2005 Jun 2005	Contract Professor of <i>Applied Aeroelasticity</i> , Department of Aeronautics, University of Palermo. Tasks: lectures and tutorials; final examination.
Apr 2004 May 2004	Contract Professor for the module of “ <i>Aeronautical applications of composite materials</i> ” in the context of the Post Graduate Master on <i>Composite Materials</i> held at the University of Palermo from October 2003 to June 2004. Tasks: lectures on the subject and final assessment.
Feb 2004 Jun 2004	Contract Professor of <i>Helicopter Flight Mechanics</i> , Department of Aeronautics, University of Palermo. Tasks: lectures and tutorials; final examination.

Students supervision

I have supervised several students (>30) at the University of Palermo, during the development of their final project, at the end of the five-year Italian M.Eng. Course, on subjects related to Structural and Computational Mechanics and Modelling. In some cases, this activity has led to the publication of papers or proceedings (e.g. with my former student Dr. C. Orlando - CMES, 15(1), pp.17-30, 2006 - see list of publications).

Recently, I have encouraged three students of UniPa (Mr. F. Bonanno, Mr. G. Geraci and Mr. F. Trentacoste), who desired to undertake their final project abroad, to join me at ICL, where I supervised them on themes related to my Marie Curie project. The experience has been highly rewarding, and led to their active participation in the *XIV International Conference on Boundary Element and Meshless Techniques* in Paris, where they presented the results of their work (see list of publications and conferences). Moreover, Mr. Geraci is currently a PhD student at Imperial College London, while Mr. Trentacoste is being considered as PhD candidate at the same institution.

I am currently supervising a PhD student (V. Gulizzi) at the University of Palermo, who is taking forward my work on micromechanics and multiscale modelling of polycrystalline materials.

I co-supervised a PhD student (Zou Fangxin) at Imperial College London, which led to the publication of a journal article and some conference papers.

Other services at UniPa

At my Home Institution, UniPa, I also have administrative tasks. I am currently **Secretary Assistant** of the **Academic Board** of the Master Course in Aerospace Engineering and **Secretary Member** of the **Teaching Committee**. The Academic Board is in charge of the strategic planning of teaching for the Master Course and it is the interface between the Course and the Dean. For more fundamental planning issues it may also report directly to the Ministry. The Teaching Committee is the interface between the Course and the students and it is in charge of dealing with students' queries.

I have consistently held these functions since 2008, when I became Lecturer at Unipa, with the exception of my research leaves abroad.

Scientific Publications▪ **Journal Articles**

- [1] Gulizzi V, Milazzo A, and Benedetti I. "An enhanced grain-boundary framework for computational homogenization and micro-cracking simulations of polycrystalline materials." *Computational Mechanics*, 56(4), 631-651, **2015**.
- [2] Benedetti I and Aliabadi MH. "Multiscale modeling of polycrystalline materials: A boundary element approach to material degradation and fracture." *Computer Methods in Applied Mechanics and Engineering* 289, 429-453, **2015**.
- [3] Zou F, Benedetti I, Aliabadi MH. "A boundary element model for structural health monitoring using piezoelectric transducers". *Smart Materials and Structures*, 23(1), 015022, **2014**.
- [4] Alaimo A, Benedetti I, Milazzo A, "A finite element formulation for large deflection of multilayered magneto-electro-elastic plates". *Composite Structures*, 107, 643-653, **2014**.
- [5] Benedetti I, Aliabadi MH, "A three-dimensional cohesive-frictional grain-boundary micromechanical model for intergranular degradation and failure in polycrystalline materials", *Computer Methods in Applied Mechanics and Engineering*, 265, 36-62, **2013**.
- [6] Benedetti I, Aliabadi MH, "A three-dimensional grain boundary formulation for microstructural modelling of polycrystalline materials", *Computational Materials Science*, 67, 249-260, **2013**.
- [7] Benedetti I, Barbe F, "Modelling Polycrystalline Materials: An Overview of Three-Dimensional Grain-Scale Mechanical Models", *Journal of Multiscale Modelling*, 5(1), 1350002, **2013**.
- [8] Trentacoste F, Benedetti I, Aliabadi MH, "Computational homogenization of polycrystalline materials with pores: a three-dimensional grain boundary formulation", *J. of Multiscale Modelling*, 4(3), 1250012, **2012**.
- [9] Milazzo A, Benedetti I, Aliabadi MH, "Hierarchical fast BEM for anisotropic time-harmonic 3D elastodynamics", *Computers & Structures*, 96-97, 9-24, **2012**.
- [10] Benedetti I, Aliabadi MH, "A fast hierarchical dual boundary element method for three-dimensional elastodynamic crack problems", *Int Journal for Numerical Methods in Engineering*, 84, 1038-1067, **2010**.
- [11] Benedetti I, Aliabadi MH, Milazzo A, "A fast BEM for the analysis of damaged structures with bonded piezoelectric sensors", *Computer Methods in Applied Mechanics and Engineering*, 199(9-12), 490-501, **2010**.
- [12] Benedetti I, Milazzo A, Aliabadi MH, "Structures with Surface-Bonded PZT Piezoelectric Patches: a BEM Investigation into the Strain-transfer Mechanism for SHM applications", *Structural Durability & Health Monitoring*, Vol. 5(3), 251-273, **2009**.
- [13] Brancati A, Aliabadi MH, Benedetti I, "Hierarchical Adaptive Cross Approximation GMRES Technique for Solution of Acoustic Problems Using the Boundary Element Method", *CMES - Computer Modeling in Engineering and Science*, 43(2), 149-172, **2009**.
- [14] Benedetti I, Milazzo A, Aliabadi MH, "A fast dual boundary element method for 3D anisotropic crack problems", *International Journal for Numerical Methods in Engineering*, 80(10), 1356-1378, **2009**.
- [15] Benedetti I, Aliabadi MH, Davì G, "A fast 3D Dual Boundary Element Method based on Hierarchical Matrices". *International Journal of Solids and Structures*, 45(7-8), 2355-2376, **2008**.
- [16] Milazzo A, Alaimo A, Benedetti I, "Piezoelectric Bimorph Response with Imperfect Bonding Conditions", *ICCES Online*, 6(3), **2008**.
- [17] Milazzo A, Benedetti I, Orlando C, "A boundary element formulation for magneto-electro-elastic laminates", *CMES - Computer Modelling in Engineering and Science*, 15(1), 17-30, **2006**.

▪ **Book Chapters**

- [18] Benedetti I, Milazzo A, Aliabadi MH, "Fast Hierarchical Boundary Element Method for Large Scale 3D Elastic Problems" in *Boundary Element Methods in Engineering and Science*, World Scientific Review, IC Press, MH Aliabadi & K Wen (Eds), **2010**.
- [19] Davì G, Milazzo A, Benedetti I, "Analysis of piezoelectric composite laminates with edge delamination", in *Fracture and Damage of Composites*, Guagliano M & Aliabadi MH (Eds), WIT Press, **2006**.

▪ **Conference Proceedings**

(I attended almost all the corresponding conferences; for each work, the conference speaker is highlighted in bold).

- [20] **I Benedetti**, MH Aliabadi, "A Multiscale Approach to Polycrystalline Materials Damage and Failure", *Key Engineering Materials*, 627, 33-36, **2014**.
- [21] **I Benedetti**, MH Aliabadi, "A two-scale three-dimensional boundary element framework for degradation and failure in polycrystalline materials", *Proceedings of the XV International Conference on Boundary Element and Meshless Techniques* (BeTeq 2014), Florence, Italy, **2014**.
- [22] **F Trentacoste**, I Benedetti, MH Aliabadi, "Polycrystalline materials with pores: effective properties through a boundary element homogenization scheme", *Proceedings of the XV International Conference on Boundary Element and Meshless Techniques* (BeTeq 2014), Florence, Italy, **2014**.
- [23] **I Benedetti**, MH Aliabadi, "Computational modeling of brittle failure in polycrystalline materials using cohesive-frictional grain-boundary elements", *Key Engineering Materials*, 577-578, 233-236, **2013**.

- [24] **I Benedetti**, MH Aliabadi, "A cohesive boundary element approach to material degradation in three-dimensional polycrystalline aggregates", *Proceedings of the XIV International Conference on Boundary Element and Meshless Techniques* (BeTeq 2013), Paris, France, **2013**.
- [25] **F Bonanno**, I Benedetti, A Milazzo, MH Aliabadi, "Dual Boundary Element Method for fatigue crack growth: implementation of the Richard's criterion", *Proceedings of the XIV International Conference on Boundary Element and Meshless Techniques* (BeTeq 2013), Paris, France, **2013**.
- [26] **F Zou**, I Benedetti, MH Aliabadi, "Application of dual boundary element method in active sensing", *Proceedings of the XIV International Conference on Boundary Element and Meshless Techniques* (BeTeq 2013), Paris, France, **2013**.
- [27] **I Benedetti**, MH Aliabadi, "A grain boundary formulation for the analysis of three-dimensional polycrystalline microstructures", *Key Engineering Materials*, 525-526, 1-4, **2012**. Presented at the International Conference on Fracture and Damage Mechanics held in September 2012 in Xi'An, China.
- [28] MH Aliabadi, **I Benedetti**, A Milazzo, "Hierarchical-ACA DBEM for anisotropic three-dimensional time-harmonic fracture mechanics", *Proceedings of the XIII International Conference on Boundary Element and Meshless Techniques* (BeTeq 2012), Prague, Czech Republic, **2012**.
- [29] **I Benedetti**, MH Aliabadi, "A three-dimensional boundary element model for the analysis of polycrystalline materials at the microscale", *Proceedings of the XIII International Conference on Boundary Element and Meshless Techniques* (BeTeq 2012), Prague, Czech Republic, **2012**.
- [30] I Benedetti, A Milazzo, **C Orlando**, "3D boundary element analysis of delamination crack using the modified crack closure integral", *Proceedings of the XIII International Conference on Boundary Element and Meshless Techniques* (BeTeq 2012), Prague, Czech Republic, **2012**.
- [31] A Milazzo, I Benedetti, MH Aliabadi, "A fast hierarchical BEM for 3D anisotropic elastodynamics", *Proceedings of the XII International Conference on Boundary Element Techniques* (BeTeq 2011), Brasilia, Brazil, **2011**. (Not attended).
- [32] A Milazzo, **I Benedetti**, MH Aliabadi, "Hierarchical BEM for dynamic analysis of anisotropic 3D cracked solids", *Proceedings of the International Conference of the European Aerospace Societies*, CEAS 2011, Venice, 24-28 October, Edited on CD Rom, **2011**.
- [33] **I Benedetti**, Z Sharif-Khodaei, MH Aliabadi, "A fast BEM for the analysis of plates with bonded piezoelectric patches", *Proceedings of the XI International Conference on Boundary Element Techniques* (BeTeq 2010), Berlin, Germany, **2010**.
- [34] I Benedetti, **A Alaimo**, MH Aliabadi, "On the accuracy of the fast hierarchical DBEM for the analysis of static and dynamic crack problems", *Proceedings of the XI International Conference on Boundary Element Techniques* (BeTeq 2010), Berlin, Germany, **2010**.
- [35] **A Brancati**, MH Aliabadi, I Benedetti "Rapid acoustic boundary element method for solution of 3D problems using hierarchical adaptive cross approximation GMRES approach", *Proceedings of the X International Conference on Boundary Element Techniques* (BeTeq 2009), Athens, Greece, **2009**.
- [36] **Benedetti I**, Aliabadi MH, "Fast Solution of 3D Elastodynamic Boundary Element Problems by Hierarchical Matrices", *Proceedings of the X International Conference on Boundary Element Techniques* (BeTeq 2009), Athens, Greece, **2009**.
- [37] **Benedetti I**, Milazzo A, Orlando C, "Dynamic Analysis of Piezoelectric Structures by the Displacement Boundary Method", *Proceedings of the X International Conference on Boundary Element Techniques* (BeTeq 2009), Athens, Greece, **2009**.
- [38] **Benedetti I**, Milazzo A, Aliabadi MH, "A fast BEM model for 3d elastic structures with attached piezoelectric sensors", *XX AIDAA National Conference*, Milan, Italy, June **2009**.
- [39] **Benedetti I**, Milazzo A, Aliabadi MH, "A fast DBEM solver for 3D anisotropic crack problems", *Proceedings of GIMC Italian Conference* (GIMC 2008 <http://www.lamc.ing.unibo.it/gimc2008/>), Alghero, Italy, **2008**.
- [40] **Benedetti I**, Milazzo A, Aliabadi MH, "A fast 3D BEM for anisotropic elasticity based on hierarchical matrices", *Proceedings of the IX International Conference on Boundary Element Techniques - BeTeq 2008*, Sevilla, Spain, **2008**.
- [41] **Benedetti I**, Aliabadi MH, Davi G, "A fast 3D dual boundary element method based on hierarchical matrices", *Proceedings of the VIII International Conference on Boundary Element Techniques - BeTeq 2007*, Naples, Italy, **2007**.
- [42] Milazzo A, Benedetti I, **Alaimo A**, "Multidomain boundary element analysis of composite laminates with imperfect bonding conditions", *Proceedings of the VIII International Conference on Boundary Element Techniques - BeTeq 2007*, Naples, Italy, **2007**.
- [43] **Benedetti I**, Aliabadi MH, Davi G, "A fast boundary element method for 3D elasticity based on hierarchical matrices", *Proceedings of the XIX AIDAA National Congress*, Forlì, Italy, **2007**.
- [44] **Alaimo A**, Benedetti I, Milazzo A, "Analysis of composite laminates with imperfect bonding conditions", *Proceedings of the XIX AIDAA National Congress*, Forlì, Italy, **2007**.
- [45] Milazzo A, Benedetti I, **Orlando C**, "A boundary element formulation for magneto-electro-elastic laminates", *Proceedings of the VII International Conference on Boundary Element Techniques - BeTeq 2006*, Paris, France, **2006**.

- [46] Davì G, Milazzo A, **Benedetti I**, Alaimo A., “Displacement Boundary Method for 2D vibrations of piezoelectric materials”, *XVIII AIDAA National Conference*, Volterra (Pisa), Italy, Sept **2005**.
- [47] Davì G, Milazzo A, **Benedetti I**, “Free Vibrations of Anisotropic Panels”, *Proceedings of the V International Conference on Boundary Element Techniques - BeTeq 2004*, Lisbon, Portugal, July **2004**.
- [48] Davì G, Milazzo A, **Benedetti I**, “Crack Propagation in Piezoelectric Solids”, *Proceedings of the IV International Conference on Boundary Element Techniques - BeTeq 2003*, Granada, Spain, July **2003**.
- [49] Benedetti I, Davì G, Milazzo A, “Orthotropic plate dynamics by a novel meshfree method”, *Proceedings of the Second MIT Conference on Computational Fluid and Solid Mechanics*, **2003**. (Not attended)

▪ Abstracts

- [50] **I Benedetti**, MH Aliabadi, “Brittle failure in polycrystalline RVEs by a grain-scale cohesive boundary element formulation”, *Oral presentation at the III International Conference on Material Modelling (Incorporating the XIII European Mechanics of Materials Conference)*, Warsaw, Poland, 8-11 September **2013**.
- [51] I Benedetti, MH Aliabadi, “Intergranular damage and fracture in polycrystalline materials. A novel 3D microstructural grain-boundary formulation”, *Oral presentation at the Seventh M.I.T. Conference on Computational Fluid and Solid Mechanics*, Boston, Massachusetts, USA, 12-14 June **2013** (Not attended)
- [52] **F Trentacoste**, I Benedetti, MH Aliabadi, “Porosity effects on elastic properties of polycrystalline materials: a three-dimensional grain boundary formulation”, *Oral presentation at the XIV International Conference on Boundary Element and Meshless Techniques (BeTeq 2013)*, Paris, France, **2013**.
- [53] **G Geraci**, I Benedetti, MH Aliabadi, “Effects of voids and flaws on the mechanical properties and on intergranular damage and fracture for polycrystalline materials”, *Oral presentation at the XIV International Conference on Boundary Element and Meshless Techniques (BeTeq 2013)*, Paris, France, **2013**.

Editorial activity

- Guest editor of Volume 5, issue 1 of *Journal of Multiscale Modelling* (March 2013)
<http://www.worldscientific.com/toc/jmm/05/01#t=to>

Affiliations and Membership

- Since 2013: Member of the Scientific board of the *International Conference on Damage and Fracture Mechanics*.
- Since 2013: Member of the Scientific Advisory Committee of the International Conference on Boundary Element and Meshless techniques.
- Since 2013: Member of the Marie Curie Alumni Association.
- Since 2012: Member of the Scientific Committee of the PhD in Civil, Environmental, Aerospace and Materials Engineering of the University of Palermo (Italy).
- Since 2009: Member of the Scientific board of the PhD in Technology and Management of Aeronautical Infrastructures of the University Kore of Enna (Italy).
- Since 2003: Member of the Italian Register of Professional Engineers, Section A, Sectors a, b, c (Civil-Environment, Industry, Information Technology).

Professional honors, awards and fellowships

- Recipient of a **Fulbright Visiting Scholarship** for the project Multiscale modelling of biological and bio-inspired damage-resistant materials. **Call**: Fulbright Visiting Scholarship 2015; **Host**: Northwestern University, Evanston, IL, USA. **Web**: <http://www.cies.org/grantee/ivano-benedetti>
- Recipient of a **European Marie Curie Intra European Fellowship**.
EU Call: FP7-PEOPLE-2010-IEF; **Project**: Three-dimensional Multiscale model for material degradation and fracture in polycrystalline materials; **Proposal number**: 274161; **Grant Agreement**: PIEF-GA-2010-274161; **EU contribution**: 210,092 euros. **Host**: Department of Aeronautics, Imperial College London. **Web**: http://cordis.europa.eu/result/rcn/148335_en.html

Community service

I have served as referee for several Journals, including:

- *Computer Methods in Applied Mechanics and Engineering*
- *International Journal of Solids and Structures*
- *International Journal for Numerical Methods in Engineering*
- *Engineering Analysis with Boundary Elements*
- *Journal of Aerospace Engineering*
- *Nuclear Engineering and Design*
- *Applied Mathematical Modelling*

- *Meccanica*
- *Journal of Intelligent Material Systems and Structures*
- *Journal of Multiscale Modelling*
- *Key Engineering Materials*
- *Engineering Computations (International journal for computer-aided engineering and software).*