

## CURRICULUM VITAE - ROBERTO CIPOLLONE

Roberto Cipollone was born in Chieti (Italy), April 21st, 1957. He's Full Professor of *Interactions between the Environment and thermal engines* since 1995.

From a scientific point of view his career was oriented toward the evaluation of the "engineering" interactions between energy transformation and the environment. Main aspects treated are:

- Internal combustion engine control, cycle resolved air/fuel ratio control, injection processes, heat transfer, advanced thermal management of engine and vehicles (oil, cooling fluid, metallic masses), variable valve actuation, component and control strategies for engine optimization needs (pump, sealing systems, dual loop cooling, vehicle and engine thermal needs optimization, LPG injection, etc...), compressor assisted massive exhaust gas recirculation, intake and exhaust air and gas dynamics, hybrid propulsion;
- Low grade thermal energy recovery into mechanical energy: main aspect is related to exhaust gases of internal combustion engines but many other applications were and are under consideration. The most charactering aspect is the focus on new expanders based on the sliding vane technology;
- Concentrated Solar Power (CSP) plants based on the parabolic through technology: modelling of the energy capture and transfer to a thermal medium, new plant configurations (called DEC-based) using air, thermal storage based on reservoirs filled by silica-based materials, desalination plants integration.

He was responsible of many important research projects done for Companies having an international dimension (Parker Hannifin, Cleveland USA, Dayco Inc., USA, Mark Four-MIV Systèmes Moteur, France, Daytech Spain, MTU Italy, Hunsheal, Sweden, Ing. E. Mattei S.p.A, Italy, Emerson Appliances, USA, FCA & IVECO, Italy, BMW Germany, OMP, Italy, Pagani S.p.A, Italy, etc.... ) and of several research project at European and National-government supported level (CONVENIENT, HICEPS, ENERGY XXI, SAVE, NOWASTE, etc...).

A parallel research activity more oriented to the services sector was developed referred to the energy and environmental territorial planning. Under his supervision, several important activities were developed like Regional Environmental and Energetic Plans (Abruzzo's Region, Teramo & L'Aquila Provinces, many industrial districts, etc...) and hundreds of Municipal Plans (SEAP), according to the European rules.

Other research interests were:

- Fluid sealing for industrial and special application (automotive sector, oil & gas, CSP plants);
- Oil and gas management in on/off shore conditions at cryogenic temperature (LNG); a cryogenic, flexible and floating hose was designed, built and tested for LNG transportation in harsh marine conditions;
- Energy recovery and technology optimization of rotary vanes machines for industrial compressed air production;
- Optimization of environmental and energy needs in industrial areas;
- Subsea rapid discharge accumulator design in the framework of the revision of the API-16D-Method C norm (Blow Out Valve Preventers optimization).

Roberto Cipollone is presently the Director of the PhD School at University of L'Aquila in the Engineering and Economy Sector. He published about two hundred scientific papers. He was inventor of several national and European patents. He manages a research staff of 20-25 high qualified persons being

professors, researchers, post-doc and PhD students. A “cloud” of 20-25 master students each year participate to the research activity. An important dynamic test room for engine characterization (mechanical & environmental performances) as well as several specific experimental test rigs (ORC based power units, pump & compressor & refrigerating units characterization, pressure wave pulsation, laser diffractometry for spray sizing, etc...) improve the research capabilities.