



November | 2023

Caterina CASAVOLA

**curriculum of teaching, scientific and professional
activities**

Actual position

Full Professor of “Machine Design” (09/A3 – ING-IND/14).

Dept. of Mechanical, Mathematics and Management (DMMM) – Polytechnic University of Bari (PoliBA), Italy.

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Web page:

<https://www.dmmm.poliba.it/index.php/it/laboratori/laboratorio-di-analisi-delle-tensioni-residue;>

<https://www.dmmm.poliba.it/index.php/it/laboratori/laboratorio-di-prove-statiche-e-dinamiche;>

<https://www.dmmm.poliba.it/index.php/it/laboratori/laboratorio-di-analisi-sperimentale-delle-sollecitazioni-e-biomeccanica;>

<http://www.poliba.it/it/TISMA/laboratorio-ur2-residual-stress>

Education

2001 - Master Degree in Mechanical Engineering, Polytechnic Univ. of Bari (Italy).

2005 - Doctor of Philosophy in Mechanical Engineering, Polytechnic Univ. of Bari (Italy), discussing a dissertation on numerical and experimental studies for fatigue verification of welded structures.

Previous academic activities

- In 2005-2012, Assistant Professor of Machine Design at the Engineering School I of the Polytechnic Univ. of Bari.
- In 2012-2019, Associate Professor of Machine Design at the Polytechnic Univ. of Bari.
- In April 2017, Prof. Casavola obtained the requisite qualification to Full Professor of Mechanical Design.

Academic work experience

- Coordinator of the Master's Degree Course in Mechanical Engineering of the PoliBA, 2021-2024.
- Delegate for the optimization of the Department's performance in the acquisition and management of competitive research funding, 2021-2024 (D.D. 108/2021).
- Member of the *Discipline Board* of the Polytechnic of Bari, since 2021.
- Delegate for the integration of people with disabilities (D.R. 187/2014 - May 15, 2014). The delegate promotes, oversees and coordinates initiatives aimed at integrating people with disabilities, with the responsibility of managing a specific fund provided by MIUR (L. 17/1999).
- Delegate for the analysis and optimization of the Department's performance in relation to the strategic parameters of the University, 2018-2021.
- Member of the *Teaching Observatory*, 2018-2021 (D.R. 762/2018).
- Member of the *Research and Technology Transfer Working Group* of the DMMM, 2018-today (minutes of the CdD n.28 / 2018).
- Member of the *Department Board*, 2015-2018 (D.D. 151/2015).
- Member of the *Committee Research and Technology Transfer* of the DMMM, PoliBA, since 2013.
- Member of the *Scientific Council of the University Library System*, PoliBA, since 2013.
- *Scientific Director of the Laboratories*:
 - “Static and Dynamic Testing” (seven testing machines, including two electromechanics for static test, three servo-hydraulic for fatigue test and a resonance machine for fatigue test at high frequency);
 - “Residual stress” (two measuring systems HDM, an optical system, an X-ray diffractometer, a system based on the Barkhausen noise);
 - “Telemetry” for the experimental analysis of stresses (three data acquisition for strain gauges, other instruments and sensors both cabled and wi-fi).
 - “EMILIA” (Experimental Mechanics Integrated Laboratory in Aerospace).
- Participation in numerous Commissions for assigning research grants, post doc grants, collaboration contracts, since 2005.
- Chairman of the Commission for Engineering Admissions Tests (TAI test), in 2016-2020.

Scientific non-academic activities

- Chairman of the Scientific Committee of the Consortium CALEF (www.consorziocalef.it), appointed by the Board of Directors for a three-year term, 2017-2020.

CALEF is a research consortium (PoliBA is a member), a non-profit organization, founded in 1998 by ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development) and others with the purpose to conduct research in the field of advanced materials and engineering processes and methods of industrial production with application purposes in the field of transport. Activities and research projects are aimed at promoting and transferring the knowledge and skills acquired to the Italian industrial system, with particularly to SMEs.

Participation in Boards of Directors and Shareholders' Meetings

- Member of the CdA (Board of Directors) of CALEF Consortium as Chairman of the CTS, 2017-2020.
- Delegated by the Rector to represent PoliBA in the shareholders' meetings of the Consortium CALEF, Consortium for research and development of industrial applications of laser and electron beam and process engineering, materials, methods and production technologies, since 2005. (<http://www.enea.it/RSO/partenea/calef.html>).
- Delegated by the Rector to represent PoliBA in the shareholders' meetings of the Aerospace Technological District Membership Meetings (D.T.A. Scarl - www.dtascarl.it), in 2009-2011. The DTA was established in Apulia region in July 2009, a nonprofit company whose purpose is to research and transfer technology in the aerospace industry.

Memberships and conference committee

- Since 2001: Ordine degli Ingegneri della Provincia di Bari (member of the Society of Engineers of Bari).
- Since 2002: AIAS, Associazione Italiana per l'Analisi delle Sollecitazioni (member of the Italian Society for Experimental Stress Analysis).
- Since 2002: SEM, Society for Experimental Mechanics (member of the technical division on residual stress).
- Member of the Scientific Committee International Conference on Computational Biology and Bioinformatics (ICCB), from 2018.
- Member of the Scientific Committee International Conference on Structural Integrity and Durability (ICSID), 2017.
- Member of the Scientific Committee: International Conference on Experimental Mechanics (ICEM), 2016, 2018, 2020 S
- Member of the Scientific Committee: International Congress CFM 2015 - Colloque Euro-Méditerranée de mécanique et de matériaux - Cooperation dans les sciences, the Ingénierie et les technologies en Mécanique (France), 2015.
- Member of the Scientific Committee: Les Journées d'Etudes Techniques (JET) de l'Association Française de Mécanique et des Matériaux, International Congress held in Marrakech (Marocco), 2012, 2014, 2018, 2020.
- Member of the Scientific Committee: International Congress New Trends in Fatigue and Fracture (NTFF), since 2014.
- Member of the Scientific Committee: Youth Symposium on Experimental Mechanics (YSESM), since 2012.
- Member of the Scientific Committee: International Congress Friction Stir Welding Process (FSWP), Lille (France), 2010 and 2012.
- Member of the Scientific Committee: International Congress CFM 2011 - Colloque Euro-Méditerranée de mécanique et de matériaux - Cooperation dans les sciences, the Ingénierie et les technologies en Mécanique (France), 2011.
- Member of the Scientific Committee: Conference on Computational Mechanics and Virtual Engineering (COMEC), 2011.
- Conference co-Chairman of International Conference on Fracture and Damage Mechanics (FDM), 2017.
- Conference Chairman of International Conference on of the Youth Symposium on Experimental Mechanics (YSESM), 2013.
- Conference co-Chairman of the International Congress New Trends in Fatigue and Fracture (NT2F11), 2011.
- Member of the Organizing Committee of International Conference NTFF: Brasov (Romania), 2012.
- Member of the Organizing Committee of International Conference NTFF: Polignano a Mare (Italy), 2011.
- Member of the Organizing Committee of International Interdisciplinary Symposium on Materials Science and Materials Mechanics at the Nanoscale: Modeling, Experimental Mechanics & Applications (NANOMECH-06), Bari (Italy), 19-23 November 2006. Highlighted by Nature Jobs p. 26: Nature, Vol. 441, 25 May 2006.
- Member of the Organizing Committee of International Conference NTFF: Bari (Italy) 2005.
- Collaboration in the organization of 12th International Conference on Experimental Mechanics (ICEM12), Bari 29 August - 2 September 2004.

Direction and Coordination of Research Group

The following paragraphs provide some details concerning the national and international research groups to which Prof. Casavola has actively participated, with a function of coordination and direction.

1. Since 2005, prof. Casavola coordinates the section dealing with the characterization of materials and components by experimental - numerical - hybrid techniques.
2. Since September 2014, prof. Casavola, as Director of lab. of Residual Stress (lab. officially created in 2010), participated and successfully passed a phase of accreditation by Avio GE, so now the lab. is, for Avio and its subcontractors, the reference lab. in Italy for the study of residual stress generation on avionic gears that will fly. The Residual Stress Lab. is involved in many research projects funded by Avio GE.
3. In 2017-2020, as Chairman of the CTS (Technical-Scientific Committee) of the CALEF Consortium, directs and coordinates a commission of experts that identifies and proposes to the associates the research activities to be developed, prepares the writing of research projects to be submitted to national and European tenders. Two representatives of the academic world are members of the CTS (Univ. Of Calabria, Univ. Of Salerno), a representative of research centers (ENEA), four representatives of industries (Alenia, Centro Ricerche Fiat, FCA spa, TTM LASER spa).
4. From October 2020, prof. Casavola coordinates the EMILIA Laboratory Network (Experimental Mechanics Integrated Lab. In Aerospace) with its three venues at the Polytechnic of Bari and the University of Salento.

Participation in International and National Research Group

National Research Group

- Ing. S. Campanelli, Prof. G. Casalino, Polytechnic University of Bari (ING-IND/16)
- Prof. Livan Frattini, University of Palermo (ING-IND/16)
- Prof. L. Bruno, Prof. F. Furgiuele and Prof. C. Maletta, University of Calabria
- Prof. V. Crupi, University of Messina
- ALENIA (Pomigliano and Foggia)
- LASERINN (ex Centro Laser scarl, Bari)
- CETMA (Research Centre, Mesagne, Brindisi)
- ENEA (Brindisi, Casaccia) - Dr. V. Luprano, Mr. F. Palano, Dr. R. Terzi, Dr. A.Tati
- GE Avio (Rivalta - Brindisi - Bari offices)

International Research Group

- Prof. G. Pluvinage, Prof. Emeritus, University of Lorraine (France)
- Prof. C.A. Sciammarella, Prof. Emeritus, Armour College of Engineering (USA)
- Prof. M. Kujawska, Warsaw Univ. of Technology (Polonia):
- Prof. F. Pierron, University of Southampton (UK)
- Prof. C. Soutis, University of Manchester (UK)
- Prof. T. Hyde e prof. Sun, University of Nottingham (UK)
- Prof. M. Tuttle, University of Washington (Seattle, USA)
- Prof. E. Patterson, University of Liverpool (UK)
- Prof. C. M. Sonsino, Technische Universitat Darmstadt (Germany)
- Prof. P. Barsanescu, Technical University of Iasi (Romania)
- Prof. M. Nait-Abdelaziz, Université des Sciences et Technologies de Lille 1 (France)
- Prof. D. Karalekas, University of Piraeus (Greece)
- Prof. S. Yoshida, Southeastern Louisiana University (USA)
- Prof. Cristina Martin, Universidad de Jaén (Spain)
- THURSO SURF (USA) a new company that produces surfboards, rigid and inflatable; reference sig. Shenglong You (CEO).

Research Projects

Participant in numerous research contracts of the DMMM of PoliBa, she has had the opportunity to coordinate various activities with research institutions and industries (i.e. Avio GE, GE CELMA, Cetma, Blackshape, Elfim, PVS, Moda Filati, SGM Gantry, Magneti Marelli Powertrain, Inglass).

Coordination of Research Projects for public and/or private Companies

- P.I. of the project with ASTRADYNE srl
- P.I. of the project with SITAEL SpA
- P.I. of the project with AVIO GE - many
- P.I. of the project with HB Technology srl: Research contract on "Experimental study of the mechanical performance of metal components made by selective laser melting" (2018-2019).
- P.I. of the project with UNIV. PISA / AIRBUS: Research contract on activities commissioned by AIRBUS through the Univ. Pisa on "Research activity for experimental study of fatigue resistance and measurement of residual stress on components treated with laser shock peening" (2018-2021).
- P.I. of the project with AVIO GE, Rivalta (TO): Research activity on "Measurement of residual stresses and analysis for strip moly validation on bull gear TP4 ****" (2018).
- P.I. of the project with AVIO GE, Rivalta di Torino: Research activity on "Measurement of residual stresses on specimens taken from pieces of armies" (2018).
- P.I. of the project with AVIO GE, Rivalta di Torino: Research activity on "Measurement of residual stresses and residual austenite by means of xray on cemented pyrowear specimens" (2018).
- P.I. of the project with AVIO GE, Rivalta di Torino: Research activity on "Measurement of residual stresses using xray on AMS components ****" (2017).
- P.I. of the project with AVIO GE, Rivalta di Torino: Research activity on "Measurement of residual stress on M8202 tubes ****" (2017).
- P.I. of the project with AVIO GE, Pomigliano (NA): Research activity on "Measurement of residual stresses using xray on GenX components TGB radial bevel gear" (2017).
- P.I. of the project with AVIO GE: "Residual voltage measurement on n.3 gears Z28 part number ****" (2017).
- P.I. of the project with MAGNETI MARELLI POWERTRAIN spa, Bari: Research activity on "Scanning electron microscope characterization of the internal hole surface" (2017).
- P.I. of the project with AVIO GE, Bari: Research activity on "Development of additive technologies for repair. Residual stress measurements" (2017).
- P.I. of the project with AVIO GE, Pomigliano (NA): Research activity on "Residual stress in-depth analysis by means of x-ray diffractometer" (2017).
- P.I. of the project with SATOR srl, San Severo (FG): Research activity on "Advanced composite grid cylindrical structures (CFRP) for aerospace applications (launchers and satellites)", 2016-2017.
- P.I. of the project with AVIO GE, Rivalta di Torino: Research activity on "Residual stress in-depth analysis by means of x-ray diffractometer on gear teeht" (2017).
- P.I. of the project with AVIO GE, Rivalta di Torino: Research activity on "Residual stress in-depth analysis by means of x-ray diffractometer" (2016).
- P.I. of the project with GE CELMA Ltda, Rio de Janeiro: Research activity on "Residual Stress analysis to be performed on PoliBa University to develop an internal repair" (2016).
- P.I. of the project with O.M.P.M. srl, Salerno: Research activity on "Residual stress in-depth analysis on component n.*** Propeller Shaft" (2016).
- P.I. of the project with AVIO GE, Brindisi: Research activity on "Residual stress in-depth measurements by means of HDM technique on component ****" (2016).
- P.I. of the project with CETMA, Brindisi: Research activity on "Experimental study of the mechanical behavior of both composite coupons and parts: single cross specimen, triangle specimen" (2016).
- P.I. of the project with BLACKSHAPE spa, Monopoli (BA): Research activity on "**** wing static and fatigue test" (since 2015).
- P.I. of the project with ELFIM, Gravina di Puglia (BA): Research activity on "Experimental study of the mechanical behavior of sintered materials" (2015).
- P.I. of the project with PVS srl, Bari: Research activity on "Numerical and experimental study of strain field on tanks for the transport of fluids under dynamic conditions" (2016).
- P.I. of the project with MODA FILATI srl, Bisceglie (BT): Research activity on "Experimental study of the mechanical behavior of stithced composite materials" (2015).
- P.I. of the project with SGM GANTRY spa, Brescia: Research activity on "Residual stress in-depth analysis by means of x-ray diffractometer on titanium grade 4 pipe" (2013-2014).
- P.I. of the project with CETMA, Brindisi: Research activity on "Axial and flexural fatigue tests on unidirectional

- carbon fibres in laminates composite" (2012).
- P.I. of the project with MAGNETI MARELLI POWERTRAIN spa, Bari and Bologna: Research activity on "Study of the fatigue response of metallic automotive parts made by Magneti Marelli" (2010-2012).
- P.I. of the project with ORTHOFIX, Verona: Research activity on "Experimental analysis of the mechanical behavior of a calcaneal minifixator".
- P.I. of the project with CETMA, Brindisi: Research activity on "Fatigue strength of beam made by innovative material" – Alstom cowling (2010).
- P.I. of the project with INGLASS s.r.l., Treviso - "Design of a gusset for venting of air during molding operations" (2008-2009).
- P.I. of the project with MER MEC spa, Monopoli (BA): Research activity on "Free vibration measurements on the Roger 1000 wagon box" (2006).
- P.I. of the project with BOSCH Diesel Systems spa - Center for Vehicle Components Studies, Bari: Research activity on "Study of the static and fatigue resistance at high number of cycles on pump elements of the Common Rail system" (2004).

Coordination of Research Projects for the Polytechnic University of Bari (Research Projects admitted to financing on the basis of competitive calls for peer review)

- P.I. of Research Unit of Politecnico di Bari of the project "**SURFSUST**" Progetti di rilevante interesse nazionale PRIN2022.
- P.I. of Politecnico di Bari of the project "**INSPIRATION**" Avviso per la presentazione di progetti di ricerca industriale e sviluppo sperimentale nelle 12 Aree di specializzazione individuate dal PNR 2015-2020. Coordinator of the project: Consorzio di ricerca per l'innovazione tecnologica Sicilia Trasporti Navali Commerciali e da Diporto.
- P.I. of WP's of the project "**CLOSE to The Earth**" Avviso per la presentazione di progetti di ricerca industriale e sviluppo sperimentale nelle 12 Aree di specializzazione individuate dal PNR 2015-2020. Coordinator of the project: DTA scarl (Distretto Tecnologico dell'Aerospazio), di cui il Politecnico di Bari è socio.
- P.I. of WP of the project "**MAIA Monitoraggio attivo dell'Infrastruttura**" Avviso per la presentazione di progetti di ricerca industriale e sviluppo sperimentale nelle 12 Aree di specializzazione individuate dal PNR 2015-2020. Coordinator of the project: MER MEC SpA.
- P.I. of Politecnico di Bari of the project "**TechNology And materials for safe Low consumption And low life cycle cost veSSels And crafts – THALASSA**". Avviso per la presentazione di progetti di ricerca industriale e sviluppo sperimentale nelle 12 Aree di specializzazione individuate dal PNR 2015-2020. Coordinator of the project: Consorzio di ricerca per l'innovazione tecnologica Sicilia Trasporti Navali Commerciali e da Diporto.
- P.I. of WP's of the project "**New Satellite Generation Components – NGS**" Avviso per la presentazione di progetti di ricerca industriale e sviluppo sperimentale nelle 12 Aree di specializzazione individuate dal PNR 2015-2020. Coordinatore del progetto: Thales Alenia Spaces Italia.
- P.I. of the project **ALAINA** (2017-2019): Fabrication of Advanced composite Lattice Components using stitching Technology for Aerospace and Industrial Application - INNONETWORK: POR Puglia FESR-FSE 2014-2020 Asse prioritario 1 - Ricerca, sviluppo tecnologico, innovazione. Azione 1.6 "Interventi per il rafforzamento del sistema innovativo regionale e nazionale e incremento della collaborazione tra imprese e strutture di ricerca e il loro potenziamento".
- P.I. of the project **INERTBOX** (2013/2015): Development of an innovative system with both low energy and environmental impact - fixed or mobile - for the treatment of waste for molecular dissociation at low temperature - Programma Operativo Regionale FESR 2007-2013.
- P.I. of the project **TISMA Network - UR2** (2009-2011): Laboratory of innovative techniques for welding of advanced materials (UR2 - Residual Stress Lab.), as part of the APQ program "Public notice for the acquisition of proposals for networks of public research laboratories" - www.poliba.it/tisma.
- P.I. of the project **Call P.O. Apulia 2007-2013**, European Social Fund 20072007EN051PO005 approved by Decision C (2007) 5767 of 21/11/2007, ASSE IV - Human Capital "NETWORK OF PUBLIC RESEARCH LABORATORIES", funding for n. 1 researchers for the three-year period 2010-2012 (UR2 TISMA - Residual Stress Lab).
- P.I. of WP of the project **INNOVHEAD** (2012-2015): Advanced technologies for reducing the emissions, fuel consumption and operating costs of Heavy Duty engines". PON02 - National Operational Program "Research and Competitiveness, ASSE I - Support for structural change. Operational Objective I.3 "Networks for Strengthening the Scientific and Technological Potential of the Regions of Convergence". ACTION I.3.1 "High tech districts and related networks." ACTION I.3.2 "Public-Private Labs and Related Networks", No 713 / RIC. of 29 October 2010. Project Coordinator: Fiat Research Center.
- P.I. of WP of the project "**Precision laser machining on micrometer scale**" as part of the project PO 2007-2013, Axis I, Line 1.1 of the Puglia Region "Support for investment in research for SME's" (2009-2011).

- **Coordination and direction**, in collaboration with the Technical-Scientific Committee of the PoliBA, of the activities aimed at the realization of the Telemetry Lab. for the experimental analysis of the stresses. Project "C.C.I.T. MIT Transport (Innovation Transport Competence Center) "- PON 2000/2006 - Notice MIUR no. 1854/2006. From 01-01-2009 to 15-05-2009.
- P.I. of Politecnico di Bari of the project **LACER** "High Power Solid Ceramic Laser". D. lgs. No 297/1999 (D.M., August 8, 2000, No. 593, Article 5/6 DM 10.10.2003), Decree no. 4 of 10/01/2005. Project leader: Consortium CALEF, 2008-2009.
- P.I. of WP of the project "**Assessment of present and innovative technologies** for the management, disposal and/or recycling of waste liquid of the dairy chain" signed with Centro Laser of Valenzano (Bari) as part of the European Community Initiative INTERREG III A Grecia-Italia, Mis. 3.1 (2006).
- P.I. of WP of the project "**Development of optical interferometric techniques** for the diagnosis of electronic boards for aerospace uses" signed with Centro Laser of Valenzano (Bari) as part of the APQ program "Implementation of participation in support of Local Development" – POR Puglia 2000-2006 – Mis. 4.18 "Program contracts" entitled "Development of Innovative Methodologies for Diagnostic on Devices in Space environment" - MIDDAS (2006).
- P.I. of WP's of the project **DITECO Project** "Defect, damage and repair techniques in the Manufacturing process of large composite structures ". PON03 - National Operational Program "Research and Competitiveness 2007-2013 for the regions of convergence. Notice no. 713 / Ric. Of 29/10/2010. Title III - "Creating New Districts and / or Private Public Aggregates", 2013.
Coordinator of the project: DTA scarl (Aerospace Technology District), of which the Politecnico di Bari is a member.
- P.I. of WP's of the project **SPIA Project** "Innovative Aeronautic Primary Structures". PON03 - National Operational Program "Research and Competitiveness 2007-2013 for the regions of convergence. Notice no. 713 / Ric. Of 29/10/2010. Title III - "Creating New Districts and / or Private Public Aggregates", 2013.
Project Coordinator: DTA scarl - Partner Leader of the project: Alenia.
- P.I. of the project **ELIOS Project** "Emergent laser fiber optic welded structures". PON01 - National Operational Program "Research and Competitiveness 2007-2013" Convergence Regions, 2012-2015. Coordinator of the project: Consortium CALEF.
- P.I. of WP's of the project **MASSIME Project** "Mechatronic innovative safety systems for wireline and aerospace applications". PON02 - National Operational Program "Research and Competitiveness", 2012-2015. Project Coordinator: Mer Mec SpA.
- P.I. of WP's of the project **LABREP project** "Repair Laboratory". PON01 - National Operational Program "Research and Competitiveness 2007-2013", 2011-2015.
Project Coordinator: Avio spa.
- P.I. of WP's of the project **BATTERIE** "New process with low environmental impact and reduced operational risk for recycling and recycling of lead-forming materials". PON01 - National Operational Program "Research and Competitiveness 2007-2013", 2011-2015.
Project Coordinator: STC srl, Mesagne (BR).
- P.I. of WP of the project **TEXTRA project** "Innovative technologies and materials for transport". Research project submitted according to art. 12 of D.M. 593/2000, "Public - Private Labs Call" funded by MIUR, 2007-2014.
Project leader: CETMA Consortium.
- P.I. of the project **EMILIA Network (2009-2011)**: Experimental Mechanics Integrated Laboratory in Aerospace, as part of the APQ program "Public notice for the acquisition of proposals for networks of public research laboratories". Coordination of research activities of UR1. Project amount of UR1: 1.326,00 k€, 2009-2011.
- P.I. of WP's of the **Project "Innovative Models for Mechatronics Systems" under** the Framework Program for Scientific Research in the Puglia Region, by resolution CIPE 20/04, intervention cod. DM01 - Industrial research projects related to the implementation strategy developed by the Mechatronics Technology District, 2009-2011.

Research Projects Evaluation

Prof. Casavola acts as Expert Reviewer for the evaluation of scientific and industrial research projects for the:

- Italian Ministry of the University and of the Research (Cineca, PoliTO, REprise, Piscopia, Giovani Ricercatori "Rita Levi Montalcini", PO FESR Campania, SIR);
- *National Center of Science and Technology Evaluation* of the Republic of Kazakhstan, from 2013;
- *Fundação para a Ciência e a Tecnologia, I.P. (FCT)*, the Portuguese public funding agency for R&D, from 2016.

Conferences

Since the beginning of the research activity, she has regularly participated in various conferences, considering them to be useful opportunities for comparison and dissemination of research results. In particular, she participated in the following conferences as speaker, session chairman, organizer, member of the scientific committee, chairman of the conference.

Presentation of scientific papers at Conferences for the international dissemination of own research results:

- NT2F (Int. Conf. on New Trends in Fatigue and Fracture): Metz, 2002; Hammamet, 2003; Bari, 2005; Belgrado, 2009; Metz, 2010; Bari, 2011; Mosca, 2013; Dubrovnik, 2016.
- SEM (Society of Experimental Mechanics): Milwaukee, 2002; Charlotte, 2003; Costa Mesa, 2004; Portland, 2005; St. Louis, 2006; Springfield, 2007; Orlando, 2008; Albuquerque, 2009; Indianapolis, 2010; Uncasville, 2011; Costa Mesa, 2012; Lombard, 2013; Greenville, 2014; Costa Mesa, 2015; Orlando, 2016, Greenville 2018.
- AIAS (Ass. Italiana di Analisi delle Sollecitazioni): 2001, Alghero; 2002, Parma; 2003, Salerno; 2006, Ancona; 2007, Ischia; 2013, Salerno; 2015, Messina; Pisa, 2017; Reggio Calabria, 2018.
- AIDAA (Ass. Italiana di Aeronautica e di Astronautica): 2008, Forlì.
- AMPT (Int. Conf. on Advances in Materials & Processing Technologies): Paris, 2010.
- ATEM (Int. Conf. in Advances in Experimental Mechanics): Fukuoka, 2007.
- BSSM (British Society for Strain Measurement's): Edinburgh, 2011; Cardiff, 2013.
- CAM (Congrès Algérien de Mécanique): Biskra, 2009.
- CFM (Colloque Euro-Méditerranée de mécanique et de matériaux - Cooperation dans les sciences, the Ingénierie et les technologies en Mécanique): Besançon, 2011; Lione, 2015.
- COMAT (Int. Conf. on Advanced Composite Materials Engineering): Brasov, 2012.
- COMEC (Conf. on Computational Mechanics and Virtual Engineering): Brasov, 2011; Brasov 2017.
- COMPOSITES (Conf. on the Mechanical Response of Composites): Londra, 2009.
- DFC (Deformation and Fracture of Composites Conf.): Sheffield, 2010.
- ECF (European Conf. of Fracture): Alexandroupolis, 2006; Catania, 2016.
- ETDCM (Experimental Techniques and Design in Composite Materials): Vicenza, 2009.
- FDM (Int. Conf. On Fracture and Damage Mechanics): Mallorca, 2005; Madeira, 2007; Firenze, 2017.
- FSWP (Int. Congress on Friction Stir Welding Process): Lille, 2010; Saint Etienne, 2012.
- ICCE (Int. Conf. on Composite or Nano Engineering): Hawaii, 2009; Beijing, 2012; Roma, 2017.
- ICEM (Int. Conf. on Experimental Mechanics): Nanjing, 2008.
- ICEM (Int. Conf. on Experimental Mechanics): Bari, 2004; Alexandroupolis, 2007; Poitiers, 2010; Porto, 2012; Cambridge, 2014; Rhodes, 2016; Bruxelles, 2018.
- IGF (Gruppo Italiano Frattura): Cetraro, 2006; Forni di Sopra, 2009; Forni di Sopra, 2012; Catania, 2014; Urbino, 2015.
- IMEKO/YSESM (Youth Symposium on Experimental Mechanics): Bertinoro, 2002; Trieste, 2010; Chemnitz, 2011; Brasov, 2012; Bari, 2013; Decin, 2014.
- INASE (Int. Conf. on Mechanical Engineering): Vienna, 2015.
- IRF (Int. Conf. on Integrity, Reliability & Failure): Funchal, 2013; Porto 2016.
- ISEM (Japanese Society for Experimental Mechanics): Taipei, 2012.
- JET (Journée d'Etudes Techniques): Marrakech, 2004; Marrakech, 2006; Marrakech, 2008; Marrakech, 2014.
- M2D (Int. Conf. on Mechanics and Materials In Design): Ponta Delgada, 2015.
- MePhoCo - IEEE (Mediterranean Photonics Conf.): Trani, 2014.
- PHOTOMECHANICS (European Optical Society): Loughborough, 2008.
- SAE (Int. Conf. on Engines & Vehicles): Amalfi, 2015.

Presentation of scientific papers at Conferences by invitation

1. Invited lecture: ICEM 2008, International Conference on Experimental Mechanics, Nanjing (China) - A review on optical techniques for measurements at different scales. (Co-Authors: L. Lamberti, C. Pappalettere; Speaker: Pappalettere).
2. Invited lecture: CAM 2009, Congrès Algérien de Mécanique, Biskra, Algeria - La résistance à la fatigue des structures soudées: application d'une Méthode Locale de Contrainte (WELFARE) sur des joints soudés en aluminium. (Co-Author: C. Pappalettere; Speaker: Casavola).

3. Invited lecture: COMEC 2011, International Conference on Computational Mechanics and Virtual Engineering (COMEC 2011), Brasov (Romania), October 2011 - Application of optical techniques to the determination of 3D displacements and object shapes. (Co-Author: C. Casavola, L. Lamberti, C. Pappalettere).
4. Invited lecture: COMAT 2012, The 4th International Conference on Advanced Composite Materials Engineering, Brasov, Romania - Design Optimization of Composite Aerospace Structures. (Co-Authors: L. Lamberti, C. Pappalettere; Speaker: Lamberti).
5. Invited lecture: Int. Conference on Processes in Combined Digital Optical and Imaging Methods applied to Mechanical Engineering - Monte Verità, Switzerland, 2016 – A review of recent progress in speckle interferometry for residual stress measurements. (Co-Authors: C. Barile, G. Pappalettera, C. Pappalettere; Speaker: Pappalettera).
6. Invited lecture: YSESM 2016, Youth Symposium on Experimental Solid Mechanics - Application of Experimental Mechanics Methods to Aerospace Components (Co-Authors: C. Pappalettere, C. Casavola, L. Lamberti, G. Pappalettera, C. Barile, V. Moramarco, A. Cazzato, A. Liguori; Speaker: Pappalettere).
7. Invited lecture: International Conference and Exhibition on Satellite and Space Missions Rome, November 12-13, 2018 - Mechanical characterization of Carbon Fiber Reinforced Plastics specimens for aerospace applications (Co-Author: C. Barile).
8. Invited lecture: International Conference on Photonics Research, Antalya (Turkey) 08-12 Ottobre 2018 - Design of an optical device for endoral 3D contouring (Co-Authors: G. Pappalettera, C. Pappalettere).

Participation as Chairman of the Conference

- Conference co-Chairman of International Conference on Fracture and Damage Mechanics (FDM), 2017.
- Conference Chairman of International Conference on of the Youth Symposium on Experimental Mechanics (YSESM), 2013.
- Conference co-Chairman of the International Congress New Trends in Fatigue and Fracture (NT2F11), 2011.

Participation as member of Scientific Committees

- Member of the Scientific Committee International Conference on Computational Biology and Bioinformatics (ICCB), from 2018
- Member of the Scientific Committee International Conference on Structural Integrity and Durability (ICSID), 2017.
- Member of the Scientific Committee: International Conference on Experimental Mechanics (ICEM), 2016, 2018, 2020.
- Member of the Scientific Committee: International Congress CFM 2015 - Colloque Euro-Méditerranée de mécanique et de matériaux - Cooperation dans les sciences, the Ingénierie et les technologies en Mécanique (France), 2015.
- Member of the Scientific Committee : Les Journées d'Etudes Techniques (JET) de l'Association Française de Mécanique et des Matériaux, International Congress held in Marrakech (Marocco), 2012, 2014, 2018, 2020.
- Member of the Scientific Committee: International Congress New Trends in Fatigue and Fracture (NTFF), since 2014.
- Member of the Scientific Committee: Youth Symposium on Experimental Mechanics (YSESM), since 2012.
- Member of the Scientific Committee: International Congress Friction Stir Welding Process (FSWP), Lille (France), 2010 and 2012.
- Member of the Scientific Committee: International Congress CFM 2011 - Colloque Euro-Méditerranée de mécanique et de matériaux - Cooperation dans les sciences, the Ingénierie et les technologies en Mécanique (France), 2011.
- Member of the Scientific Committee: Conference on Computational Mechanics and Virtual Engineering (COMEC), 2011.

Participation as member of Organizing Committees

- Member of the Organizing Committee of International Conference NTFF: Brasov (Romania), 2012.
- Member of the Organizing Committee of International Conference NTFF: Polignano a Mare (Italy), 2011.
- Member of the Organizing Committee of International Interdisciplinary Symposium on Materials Science and Materials Mechanics at the Nanoscale: Modeling, Experimental Mechanics & Applications (NANOMECH-06), Bari (Italy), 19-23 November 2006. Highlighted by Nature Jobs p. 26: Nature, Vol. 441, 25 May 2006.
- Member of the Organizing Committee of International Conference NTFF: Bari (Italy) 2005.
- Collaboration in the organization of 12th International Conference on Experimental Mechanics (ICEM12), Bari 29 August - 2 September 2004.

Memberships and acknowledgment for the scientific activity carried out

- Since 2001: Ordine degli Ingegneri della Provincia di Bari (member of the Society of Engineers of the Province of Bari).
- Since 2002: AIAS, Associazione Italiana per l'Analisi delle Sollecitazioni (member of the technical division on residual stress).
- Since 2002: SEM, Society for Experimental Mechanics (member of the technical division on residual stress and technical division on Fracture and Fatigue).

- The research article: Casavola, C., Cazzato, A., Moramarco, V., Pappalettere, C. - Influence of the clamps configuration on the residual stresses field in the friction stir welding process. Journal of Strain Analysis for Engineering Design, 50 (4), pp. 232-242, SAGE Publications Ltd. was mentioned in the editorial "What's hot in strain analysis" by prof. E. Patterson (J Strain Analysis 2016, Vol. 51 (5)) as one of the few jobs "to predict or measure the strains that occur when we make something for real".

- The research article: Barile, C., Casavola, C., Pappalettera, G, Vimalathithan, P.K. - Multi-Parameters Approach for Damage Propagation Analysis in Fiber Reinforced Polymer Composites, Applied Sciences Vol.11, Issue 1, 1 January 2021, Article number 393, Pages 1-14, was granted **Best Paper Award**.

- Prof. Casavola obtained letters of appreciation for the scientific activity carried out over the years, both by colleagues from university research centers and by colleagues of private / industrial research laboratories. Some letters received from:
 - prof. P. Barsanescu, Technical Univ. Of Iasi (Romania)
 - prof.M. Nait-Abdelaziz, Univ. Des Sciences et Technologies de Lille 1 (France)
 - prof. G. Pluinage, professor Emeritus of the Univ. of Lorraine (France)
 - prof. C. M. Sonsino, Technische Univ. Darmstadt (Germany)
 - prof. S. Yoshida, Southeastern Louisiana Univ. (USA)
 - Dr. P. Zanon, Chief Engineer AVIO GE (Rivalta, TO, Italy)



Editorial activity

Collaboration with International Journals

- Member of the Editorial Board of the international journal *Journal of Composites Science*, since 2020.
- Member of the Editorial Board of the international journal *Mathematical Problems in Engineering* indexed in Scopus, since 2018.
<https://www.hindawi.com/journals/mpe/editors/>
- Member of the Editorial Board of the international journal *STRUCTURAL INTEGRITY AND LIFE* (EISSN-ISSN 1820-7863 1451 to 3749), since 2009. <http://divk.inovacionicentar.rs/ivk/ivked.html>
- Member of the Technical Division of SEM (Society of Experimental Mechanics, USA) on Residual Stress, since 2013.
- Member of the Technical Division of SEM (Society of Experimental Mechanics, USA) on Fracture and Fatigue, since 2013.
- Member of the Editorial Board of the international journal *IASI POLITECHNIC INSTITUTE BULLETIN – Machine Construction Section*, ISSN 1011-2855, since 2016. <http://www.tuiasi.ro/en/research/iasi-polytechnic-institute-bulletin-old>.

Reviewer activity as Editor

Editor for the international journal *Mathematical Problems in Engineering*, Hindawi - indexed on Scopus.

Reviewer activity as expert researcher:

- *Journal of ASTM International*,
- *Journal of Strain Analysis for Engineering Design*
- *Journal of Mechanical Engineering Science – Part C*
- *Materials Science & Engineering – Part A*
- *Metals*
- *Measurements*
- *Engineering Failure Analysis*
- *Optics and Lasers in Engineering*
- *Experimental Mechanics*
- *Composites Part B*
- *International Journal of Fatigue*
- *Fatigue and Fracture of Engineering Materials and Structures*
- *Journal of Mechanical Engineering and Performance*
- *Journal of Applied and Computational Mechanics*

Participation in editorial projects by invitation as Editor

1. **Guest Editor of the Special Issue** “Carbon Fiber Reinforced Polymers (CFRP): Mechanical behavior and Applications”, *Materials*, MDPI Journals. https://www.mdpi.com/journal/materials/special_issues/CFRPs
2. **Editor of the book** “New challenges in residual stress measurements and evaluation”, Intech Open Publisher, UK, 2020. DOI: 10.5772/intechopen.78830.
3. **Editor of the book** “Key Engineering Materials”, 754 KEM, p. iv., Mariano, P.M., Baragetti, S., Casavola, C., Pappalettere, C., Aliabadi, F.M.H. Editors, Trans Tech Publications.

Participation in editorial projects by invitation (book chapters)

1. **Casavola, C.** et al. - *Application of optical methods to electronics components stress analysis*. Book Chapter n. XX of *Application Specific Integrated Circuits - Technologies, Digital Systems and Design Methodologies*. InTech CY, 2019. DOI: 10.5772/intechopen.82714.
2. Casavola, C. et al. - Mechanical characterization of carbon fiber-reinforced plastic specimens for aerospace applications. *Mechanical and Physical Testing of Biocomposites, Fibre-Reinforced Composites and Hybrid Composites*, p. 387-407, 1/1/2019, Woodhead Publishing.
3. Casavola, C. et al. - Fatigue damage propagation in AISI 430 F/1: A monitoring approach based on acoustic emission and infrared thermography. *Focus on Acoustic Emission Research*, pp. 53-72, 2017, Nova Science Publisher.
4. Casavola, C. et al. - Residual Stress in Friction stir welding and Laser assisted friction stir welding by Numerical Simulation and Experiments. Book Chapter n. 4 of "Residual Stress Analysis on Welded Joints by Means of Numerical Simulation and Experiments" - Intechopen SN - 978-1-78923-107-6 PB - InTech CY - Rijeka Y2 - 2018-06-22 ER. May, 2018. (Invited: Casavola)

5. Casavola, C. et al. - Experimental testing, analysis and optimization of aerospace structures and components (2012). Advances in Engineering Research, vol.1, ch.14, pp. 437-562. Nova Science Publishers, ISBN: 978-1612097985. (Invited: Casavola)
https://www.novapublishers.com/catalog/product_info.php?products_id=22148
6. Casavola, C. et al. - Welding of titanium alloys: fatigue and residual stresses (2011). Advances in Mechanical Engineering Research. vol. 3, ch.11, pp. 65-110. NOVA SCIENCE PUBLISHERS, ISBN: 978-1612092430. (Invited: Casavola)
7. Casavola, C. et al. – Advanced metaheuristic optimization algorithms for inverse problems in elasticity (2012). Advances in Engineering Research. Volume 2, Chapter 5. Nova Science Publishers, Inc. (New York, USA), pp. 339-382. ISBN: 978-1613247099.
https://www.novapublishers.com/catalog/product_info.php?products_id=25054
8. Casavola, C. et al. – Application of optical interferometry to engineering measurements at different scales (2009). Handbook of Interferometers: Research, Technology and Applications. Nova Science Publishers, Inc. (New York, USA), pp. 73-165. ISBN: 978-1-60741-050-8.
https://www.novapublishers.com/catalog/product_info.php?products_id=9428.

Patents

1. No. BA2014A000032 (May 2014): Set-up combinato moiré-speckle a due lunghezze d'onda per l'esecuzione di misure in contemporanea (Two wavelengths combined moiré-speckle setup to perform measurements simultaneously). Inventors: Casavola Caterina, Pappalettera Giovanni, Pappalettere Carmine.
2. No. BA2012A000040 (June 2012): Dispositivo ottico per la misura contemporanea di deformazioni nel piano e fuori dal piano (Optical device for the simultaneous measurement of in the plane and out of plane strains). Inventors: Casavola Caterina, Pappalettera Giovanni, Pappalettere Carmine.
3. No. BA2012A000027 (April 2012): Dispositivo ottico per il contouring di elementi di forma arbitraria (Optical device for the contouring of arbitrary shape elements). Inventors: Casavola Caterina, Luciano Lamberti, Pappalettera Giovanni, Pappalettere Carmine.
4. Patent required as consequence of industrial collaboration. The request is under evaluation and concerns a system that exploits the inverse peltier phenomenon for the recovery of energy from hybrid propulsion systems. Company: Magneti Marelli S.p.a. - Div. Powertrain.
Inventors: N. Bellato, A. Davitti, F. Ciampolini, C. Casavola.

Achievements in technology transfer

Founding partner (30%) of the academic spin-off CENMS S.r.l. (Center for Experimental and Numerical Mechanics for Materials and Structures), which was established in 2010. Today CENMS S.r.l. is a fully privatized capital company, consisting of a team of highly specialized engineers and physicists led by an industrial president. Academic members are no longer in the corporate structure since June 2018.

Teaching activities

Classes (Teaching at Polytechnic University of Bari)

- Design of Innovative Materials and Aerospace Testing (12 CFU), Master degree in Mechanical Engineering,
- Tutor for training on Mechanical Engineering Experimentation for Structural Materials and Components (3 CFU), Degree in Mechanical Engineering
- Experimental Mechanics (6 CFU), Master Degree in Mechanical Engineering

Participation in other Evaluation Committees

- *Progettazione Meccanica I* (corso A) del corso di Laurea Triennale in Ingegneria Meccanica, a partire dall'A.A. 2005/06.
- *Meccanica dei materiali* (corso A) del corso di Laurea Triennale in Ingegneria Meccanica, a partire dall'A.A. 2005/06.
- *Progettazione Meccanica I* (corso B) del corso di Laurea Triennale in Ingegneria Meccanica, dall'A.A. 2005/06.
- *Meccanica dei materiali* (corso B) del corso di Laurea Triennale in Ingegneria Meccanica, dall'A.A. 2005/06.
- *Meccanica Sperimentale I (A-L)* del corso di Laurea Triennale in Ingegneria Meccanica, a partire dall'A.A. 2005/06.
- *Misure meccaniche e termiche I* del corso di Laurea Triennale in Ingegneria Meccanica, a partire dall'A.A. 2005/06.
- *Tecniche Ingegneristiche* del corso di Laurea Triennale in Design Industriale presso la Facoltà di Architettura del Politecnico di Bari, A.A. 2009/10 e 2011/12.

- *Costruzione di veicoli terrestri* del corso di Laurea Magistrale in Ingegneria Meccanica, A.A. 2010/11.
- *Advanced methods for structural optimization* del corso di Laurea Magistrale in Ingegneria Meccanica, dall'A.A. 2015/16 al 2017/18.
- *Progettazione assistita di aeromobili* del corso di Laurea Magistrale in Ingegneria Meccanica, A.A. 2015/16.
- *Meccanica sperimentale* del corso di Laurea in Ingegneria Meccanica Magistrale dall'A.A. 2016/17 al 2018/19.
- *Certification of aerospace structures* del corso di Laurea Magistrale in Aerospace Engineering, Univ. del Salento, A.A. 2017-18.
- Aggregate Member of the Examination Commission for Professional Engineer, 2006.
- Aggregate Member of the Examination Commission for Professional Engineer, 2008, II session.
- Aggregate Member of the Examination Commission for Professional Engineer, 2016.

Member of the Doctoral School of the PhD

- Mechanical Design and Biomechanics, Polytechnic Univ. of Bari, 2006 -2012.
- Mechanical Engineering, Polytechnic Univ. of Bari, 2011-2013.
- Mechanical Engineering and Management, Polytechnic Univ. of Bari, 2012-2015.
- Aerospace Engineering and Science, Polytechnic University of Bari, since 2020.

Tutoring

Degree thesis

- Prof. Casavola is examiner of about 150 degree thesis in Mechanical Engineer and in Master degree in Mechanical Engineering
- Prof. Casavola is co-supervisor of 4 thesis in Mechanical Engineering of Univ. of Lille 1, France (Dr Mahdi Kracht, Dr Mohamed Cheick-Tourad, Dr Amro El Bepasawy, Dr Guillame Naegelen).
- Prof. Casavola is co-supervisor of 1 thesis in Mechanical Engineering of a Univ. Politécnica de Catalunya-EUETIB, Spain (Dr Alexandre Juarez Jimenez).

PhD thesis

1. Dr. Simone Carone – Misura di tensioni residue mediante metodi ottici (PhD in Mechanical and Management Engineering, 2020-2023).
2. Dr. Marika Patronelli – Experimental and numerical study of an aircraft seat (PhD in Mechanical and Management Engineering, 2019-2022).
3. Dr. Michele Angelo Attolico - Development of numerical and experimental methods for dynamic and fatigue design of aircraft components and structures obtained by AM technologies - (PhD in Mechanical and Management Engineering, 2019-2022).
4. Eng. P.K. Vimalathithan - *Numerical and Experimental Investigations on Innovative composite materials* - (PhD in Mechanical and Management Engineering, 2017-2010).
5. Dr A. Cazzato – Residual stress evaluation in innovative manufacturing techniques: FSW and FDM, defence in 2017.
6. Dr F. De Cillis – Mechanical behavior of new polymeric material for advanced industrial applications (PhD in Mechanical Design and Biomechanics), defence in 2013.
7. Dr V. Giordano – Fatigue strength of titanium welded joints with defects and mechanical characterization of laminated glass sheets (PhD in Mechanical Design and Biomechanics), defence in 2013.
8. Dr C. Pruncu - Analysis of fracture behaviour of innovative materials (PhD in Mechanical Design and Biomechanics), defence in 2013.
9. Dr C. Barile - Hybrid mechanical characterization of materials by optical and numerical techniques (PhD in Advanced Production System), defence in 2012.
10. Dr F. Renzoni – FEM analysis of a postural system for non-ambulatory persons with severe disabilities and mechanical characterization of advanced materials (PhD in Advanced Production System), defence in 2012.
11. Dr F. Tursi – Experimental and analytical methods for residual stress measurement on innovative materials (PhD in Advanced Production System), defence in 2012.
12. Dr F. Granieri - Optimization of structures with meta-heuristic methods (PhD in Mechanical Design and Biomechanics), defence in 2010.
13. Dr F. Tattoli – Experimental and numerical study of titanium welded components (PhD in Mechanical Design and Biomechanics), defence in 2010.
14. Prof. Casavola is co-tutor of 1 PhD student of the Doctoral School of Mechanical Engineering Faculty,

Technical University of Iasi (Dr Liviu Andrusca - Researches on the behavior of metallic materials subjected to multiaxial and combined loadings).

Internship

- Prof. Casavola is tutor of students involved in company internships at the companies MerMec SpA, Blackshape SpA, PVS Srl, Bionit Labs s.r.l.
- Prof. Casavola is a lecturer for the training in "Mechanical Testing for Materials and Structural Components" (3 CFU) of the Mechanical Engineering Degree Course, Polytechnic of Bari.

Erasmus program

Prof. Casavola is responsible for the Erasmus program with the University de Jaen in Spain.

Teaching at foreign Universities or Research Centre

- Since 2015, prof. Casavola has signed a convention with the University of Lille to host and train their students on the techniques for measuring residual stresses.
- Polytechnic University of Tirana (Albania): a series of seminars aimed at students, PhD students and researchers on the use of experimental mechanics techniques for experimental stress analysis and mechanical characterization of materials, with particular reference to Italian and international standards. From 12-02-2006 to 14-02-2006.
- Polytechnic University of Tirana (Albania): a series of seminars aimed at students, PhD students and researchers on the use of experimental mechanics techniques for experimental stress analysis and mechanical characterization of materials, with particular reference to Italian and international standards, and residual stress. From 21-04-2010 to 23-04-2010.
- High-level Education Project: Advanced Qualification of n. 8 graduates and n. 12 under graduates in scientific subjects for the development, design and testing of mechatronic components in the automotive and manufacturing sectors - PON01_02238 EURO 6: module of 140 hours of lesson. From 01/06/2013 to 30-11-2013.
- High-level Education Project: Advanced Qualification of researchers and specialists in the recycling, recovery and valorization of goods at the end of their life cycle. Objective 1: Experts in Automation and Robotics - PON01_01366 BATTERIES: module of 32 hours of lesson. From 01-01-2014 to 31-12-2014.
- High-level Education Project: Advanced Qualification of n. 10 graduates (researchers) and n. 10 graduates (technical) in scientific subjects for the development, design and testing of innovative mechatronic safety systems for railway, aerospace and robot applications - PON02_00576_3333585 MASSIME: module of 50 hours of lesson. From 01-06-2014 to 31-08-2014.
- High-level Education Project: Advanced Qualification of n. 8 graduates for the development, design and testing of mechatronic components in the power train sector - PON02_00576_3333604 INNOVHEAD: module of 8 hours of lesson. From 01-06-2015 to 30-06-2015.
- High-level Education Project: Advanced Qualification in Aeronautical composite aerospace designers with innovative manufacturing processes - PON03PE_00067_3 SPIA (Aeronautical innovative carrier structures): module of 36 hours of lesson on residual stress measurement techniques. From 01-11-2015 to 31-01-2016.
- High-level Education Project: Advanced Qualification in Aeronautical Composite Structures Repair Technologists - PON03PE_00067_2 DITECO: module of 12 hours of lesson. From 01-05-2016 to 31-05-2016.
- High-level Education Project: Advanced Qualification in Specialist of Automated Systems for Inspection and Control of Aeronautical Structures - PON03PE_00067_7 MAIPCO: module of 12 hours of lesson on NDI techniques, X-ray analysis techniques and residual stress measurement laboratory. From 14-06-2016 to 16-06-2016.
- Teaching of Mechanical Engineering and Aerotecnic at the Higher Education Institutes (from 2001 to 2005).

Research Activity

The research activity concerned various topics, but can be summarized in the following macro-topics:

1. Fatigue strength of welded joints (structural and local experimental methods, numerical models).
2. Study of the mechanisms of genesis and evolution of residual stresses in traditional and innovative materials. Measurement of residual stresses and optimization of measurement methodologies (hole drilling both with strain gauge rosette and with speckle interferometry, X-ray diffraction, Barkhausen noise, laser annealing, contour method).
3. Mechanical characterization (static, fatigue, impact) of innovative materials (aluminum alloys, titanium alloys, aluminum foam sandwich, composite materials for aeronautical and automotive use, sintered, polymeric and biodegradable materials, materials obtained by 3D printing) using experimental and hybrid techniques.
4. Interferometric optical techniques.
5. Experimental stress analysis.

In each of these themes the research activity has been dealt with in a wide spectrum, covering, in a related way, theoretical, methodological, design and above all experimental aspects.

Papers

The present document is updated November 2023.

Prof. Casavola has, according to Scopus, a Hirsch-index equal to 24, assessed on 166 works with 2384 total citations.

All that stated in this document corresponds to truth, in accordance with Articles 46 and 47 of D.P.R. n. 445/2000.

Bari, November 29, 2023

Prof. Ing. Caterina Casavola
