

FERDINANDO AURICCHIO

CURRICULUM VITAE

Born: June 1st, 1965, in Napoli (Italy)

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Personal Web-page: www.unipv.it/auricchio

Group Web-page: www.unipv.it/compmech

RESEARCH UNIQUE IDENTIFIER:

ResearcherID: B-9405-2009

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SCIENTIFIC PRODUCTION:

- **299 DOCUMENTS ON ISI, 302 DOCUMENTS ON SCOPUS**
- **H-Index: 53** according to **ISI**; **46** according to **Scopus**
- **Citations: 6253** according to **ISI**; **6915** according to **Scopus**
- **Citations excluding self-citations: 6009** according to **ISI**; **5573** according to **Scopus**
- **4 Highly Cited Papers** according to ISI (i.e. papers that rank in the top 1% by citations for field and year in *Web of Science*)
- **6 patents**

TOP 5 MOST CITED PAPERS:

- F. Auricchio, R.L. Taylor, J. Lubliner. "Shape-memory alloys: macro-modelling and numerical simulations of the superelastic behavior", *Computer Methods in Applied Mechanics and Engineering*, 146 (3-4): 281-312 (1997). **Citations: ISI 315, Scopus 354**
- F. Auricchio, R.L. Taylor. "Shape-memory alloys: modelling and numerical simulations of the finite-strain superelastic behavior", *Computer Methods in Applied Mechanics and Engineering*, 143 (1-2): 175-194 (1997). **Citations: ISI 231, Scopus 262**
- F. Migliavacca, L. Petrini, M. Colombo, F. Auricchio, R. Pietrabissa. "Mechanical behavior of coronary stents investigated through the finite element method", *Journal of Biomechanics*, 35 (6): 803-811 (2002). **Citations: ISI 181, Scopus 232**
- Auricchio, F., Da Veiga, L.B., Hughes, T.J.R., Reali, A., Sangalli, G. "Isogeometric collocation methods", *Mathematical Models and Methods in Applied Sciences*, 20 (11): 2075-2107 (2010). **Citations: ISI 143, Scopus 1175**
- F. Auricchio, E. Sacco. "A one-dimensional model for superelastic shape-memory alloys with different elastic properties between austenite and martensite", *International Journal of Nonlinear Mechanics*, 32 (6): 1101-1114 (1997). **Citations: ISI 156, Scopus 164**

AMOUNT OF FUNDING GRANTS (OVER LAST 5 YEARS):

The research group on "Computational Mechanics and Advanced Materials" founded and led by F.Auricchio has been able to collect funding in the order of **2,000,000 Euro** over the last 5 years.

CURRENT ACADEMIC POSITION:

- Since 2001 **Full Professor** of Solids and Structural Mechanics, Department of Civil Engineering and Architecture (previously Department of Structural Mechanics), University of Pavia, Italy
- Since 2001 **Research Associate** at IMATI-CNR (Institute for Applied Mathematics and Information Technologies of the National Research Council), Pavia, Italy

PAST ACADEMIC POSITION:

- 1998-2001 **Associate Professor** of Mechanics of Solids, Department of Structural Mechanics, University of Pavia, Italy
- 1994-1998 **Assistant Professor** of Mechanics of Solids, Department of Civil Engineering, University of Roma "Tor Vergata", Italy

EDUCATION:

- 1995 **Doctor of Philosophy** (Ph.D.), Department of Civil Engineering, University of California at Berkeley, USA
- 1991 **Master of Science** (M.S.), Department of Civil Engineering, University of California at Berkeley, USA
- 1989 **Bachelor degree** in Civil Engineering with laude, University of Napoli, Italy

AWARDS, HONORS, FELLOWSHIPS:

- 2018 Theodore von Karman Fellowship for incoming scientists, RWTH Aachen University (Germany)
- 2018 Nominated member of the **Italian National Academy of Science** (known also as Accademia dei XL)
- 2016 **Euler Medal** by **ECCOMAS** (European Community of Computational Methods in Applied Sciences). Award description can be found at <http://www.eccomas.org/spacehome/1/4>
- 2015 San Siro Merit by Comune di Pavia. Award description can be found at www.comune.pv.it/site/home/il-comune/documento7503.html
- 2012 **Fellow Award** by **IACM** (International Association for Computational Mechanics). Award description can be found at <http://www.iacm.info/vpage/1/0/Prizes-and-Awards/IACM-Awards>

PROFESSIONAL COMMITTEES AND ACTIVITIES (SELECTED):

- Since 2018 Member of the Executive Council for IACM
- Since 2015 Vice-president of IDBN, the Italian Digital Biomanufacturing Network
- Since 2015 **3D@UniPV proponent and coordinator** of University of Pavia strategic thematic project on "Virtual Modeling and Additive Manufacturing (3D printing) for Advanced Materials" (<http://www.unipv.it/3d>)
- Since 2015 Member of the "**Additive Manufacturing**" Thematic Group **Steering Committee** within Lombardy technological cluster for Smart Industry (AFIL)
- Since 2015 University of Pavia Representative within the national technological cluster "**Smart Industry**" (CFI)
- Since 2015 Member of the **Steering Committee** for the thematic group **GTTS 1 System for personalized manufacturing** within the national technological cluster "**Smart Industry**"
- Since 2015 Member of Special Interest Group (SIG) in "Advancing the design of medical stents", with an official backing from ECMI (European Consortium for Mathematics in Industry)
- Since 2014 Member of the **ECCOMAS Industry Interest Group** (IIG) with the Industrial Liaison Committee (ILC)
- Since 2013 **Vice-President of ECCOMAS** (European Community of Computational Methods in Applied Sciences)
- Since 2013 Member of the **Advisory Committee on Technical Standards for Constructions** for CNR (National Italian Research Council)
- Since 2012 **Department Chair** (Department of Civil Engineering and Architecture)
- Since 2011 Member of the European Society of Biomechanics
- Since 2010 Reviewer for ESF (European Science Foundation)

- 2019 Member of the selection committee for the lecturer in Mechanics of Continuous Media and Theory of Structures, offered at the Universitat Politècnica de Catalunya (UPC), Spain
- 2019 **Member** of the evaluation committee for the **German Excellence Initiative** (University of Bochum), Germany
- 2015-2019 **Director** of the “**Computational Mechanics and Advanced Materials**” joint Center between University of Pavia and University of Napoli Federico II
- 2018 Member of the ECCOMAS Award committee
- 2015-2017 **Member of VQR 2011-2014** (Committee for the Evaluation of the Italian University and Research System in Civil Engineering GEV 8.b)
- 2014-2017 **Coordinator** of the **Ph.D. Program in “Civil Engineering and Architecture”**
- 2013-2016 Member of the **Academic Senate**
- 2013 **External referee** of the ERC Consolidator Grant 2013 project proposals
- 2011-2014 **Member of VQR 2004-2010** (Committee for the Evaluation of the Italian University and Research System in Civil Engineering and Architecture GEV 8)
- 2011-2014 **Chairman** of the **Civil Engineering sub-Committee** within the Evaluation of the Italian University and Research System (VQR 2004-2010)
- 2011 Member of PhD-Award Committee for ECCOMAS
- 2011 **Member** of the evaluation committee for the **German Excellence Initiative** (University of Bochum)
- 2010-2017 **Coordinator** of the **Ph.D. program in “Computational Mechanics and Advanced Materials”**, program also involved in an **Erasmus Mundus Joint Doctorate Program** entitled “Simulation in Engineering and Entrepreneurship Development - SEED”
- 2009-2013 **Member** of the **International Activity Committee** (University of Pavia)
- 2009-2013 **Member** of the General Council of **IACM**
- 2009-2013 **Member** of the Managing Board and of the Executive Committee of **ECCOMAS**
- 2009-2013 **Member** of the **Scientific Committee** of CeSNA (Center for Advanced Numerical Simulation) at IUSS (Istituto Universitario di Studi Superiori, Pavia)
- 2003-2009 **Department Chair** (Department of Structural Mechanics)
- 2002-2013 Member of the Scientific Committee of IUSS
- 2001-2013 Member of the French-Italian “Lagrange laboratory”
- 2001-2013 Professor at the “European School for Advanced Studies on Seismic Risk Reduction”

MEMBERSHIPS TO EDITORIAL BOARD OF INTERNATIONAL JOURNALS:

- Since 2017 Contributing Editor for **Mechanics of Advanced Materials and Structures Journal**
- Since 2016 Editorial board member for **International Journal of Plasticity**
- Since 2014 Editorial advisory board member for **Journal of Structural Mechanics**
- Since 2013 Editorial board member for **Journal of Computational Bioengineering**
- Since 2012 Editorial advisory board member for **Computer Assisted Methods in Engineering and Science**
- Since 2012 Editorial advisory board member for **Advanced Modeling and Simulation in Engineering Sciences**
- Since 2011 Editorial board member for **Computational Mechanics**
- Since 2010 Editorial board member for **Computer Methods in Applied Mechanics in Engineering**
- Since 2009 Editorial board member for **Annals of Solid and Structural Mechanics**
- Since 2004 Advisory board member for **International Journal for Numerical Methods in Engineering**
- 2014-2016 Editorial advisory board member for **Curved and Layered Structures**
- 2011-2015 Corresponding editor for **Computer Modeling in Engineering & Sciences**

ACTIVE RESEARCH GRANTS:

- 2019-2021 “MATER: Myco-Advanced leaTher matERials”, funded by **Regione Lombardia and Fondazione Cariplo, unit member**
- 2018-2020 “MALAN: Mapping of aortic arch hemodynamics by biomechanical analysis and modeling for planning Thoracic Endovascular Aortic Repair (TEVAR)”, funded by **Italian Department of Health, unit leader**

- 2017-2021 “ProTechTion: Industrial decision-making on complex Production Technologies supported by simulation-based engineering”, funded under the **H2020 Program**, unit leader
- 2017-2019 “Smart Living Tpro.SL: TransparentTech for SmartLiving”, funded by **Regione Lombardia**, unit leader
- 2017-2019 “MADE4LO: Metal ADDitive for Lombardy”, funded by **Regione Lombardia**, unit leader

PAST RESEARCH GRANTS:

- 2016-2018 “New Materials and Technologies for Stereo lithography 3D printing”, **Regione Lombardia & INSTM**, project leader
- 2015-2018 “3D@UniPV: Virtual Modeling and Additive Manufacturing (3D printing) for Advanced Materials”, **University of Pavia**, project leader
- 2016 “Fab@Hospital for bone plate fabrication and patient anatomy reconstruction using rapid prototyping technologies”, **CNR (National Research Council)**, unit leader
- 2014-2016 “iCardioCloud. Bringing cardiovascular virtual reality to clinical bedside practice through cloud platform: implementation of a US excellence paradigm into Lombardia SSR”, **Regione Lombardia and Fondazione Cariplo**, project leader
- 2014 “Fab@Hospital. Hospital Factory for Manufacturing Customized, Patient Specific 3D Anatomic-Functional Model and Prostheses”, **CNR**, unit leader
- 2013-2016 “Advanced mechanical modeling of new materials and technologies for the solution of 2020 European challenges”, **MIUR (Italian Department of University Research)**, project leader
- 2009-2013 “Aortic Valve Sparing: toward an innovative PROsthesis design (through the exploitation of advanced materials and computational mechanics)”, **Fondazione Cariplo**, project leader
- 2010-2012 “Shape-memory-alloy advanced modeling for civil, industrial and biomedical engineering applications”, **MIUR**, project leader
- 2007-2009 “SMARTeR Shape Memory Alloys to Regulate Transient Responses in civil engineering”, **ESF (European Science Foundation)** within S3T program, unit leader
- 2006-2008 “Shape-memory alloy active microactuators and devices for biomedical applications: constitutive modeling, structural analysis, design, use of laser techniques for prototype implementation and experimental validation”, **MIUR**, project leader
- 2005-2007 “Superelastic behaviour of shape-memory alloys: development of three-dimensional numerical models and device simulations”, **CNR**, unit leader
- 2004-2006 “Shape-memory alloys: constitutive modeling, structural behavior, experimental validation and applicability to innovative biomedical applications” **MIUR**, project leader
- 2002-2003 “Shape-memory alloys: constitutive modeling, structural behavior, experimental validation and applicability to innovative biomedical applications” **MIUR**, project leader
- 2001 “Self-diagnosing materials: constitutive modelling and structural element analysis”, **CNR**, local unit leader
- 2001 “Tridimensional finite element biomechanical analysis of stent implants and of the mechanical endoprosthesis-vessel interaction”, **CNR**, unit leader

CONSULTANCY WORK (SELECTED):

- 2016 “Study and evaluation of innovative algorithm for diagnosis based on imaging”, MOXOFF, (Italy)
- 2015 “Feasibility study in the use of styrene-based polymers in the design and realization of low cost 3D printing prototypes and components”, Versalis, (Italy)
- 2015 “Experimental investigation on jaw mock-up deformation”, Studio Odontotecnico Giorgi, (Italy)
- 2015 “Compression tests on anti-freezing rubber supports”, Fluid-o-Tech (Italy)
- 2014 “3D printing prototyping of three aortic models”, Department of Biochemical Sciences – University of Milano (Italy)
- 2014 “3D printing prototyping using FDM”, Thermo Glass Door (Italy)
- 2014 “3D printing prototyping of components for the training on deafness implantology”, Bquadro Congressi (Italy)
- 2014 “Experimental investigation on elastic wires”, Ing. F.Dacarro
- 2013 “Mechanical testing on femurs”, Lima Corporate (Italy)
- 2013 “Structural investigation of a new manufacturing machine Mod.FC3013 Montaboette-Montafianchi”, Brustia Alfameccanica (Italy)
- 2008 “Validation of a SMA constitutive model”, Saes Getters (Italy)

- 2008 “Feasibility study for the design of an opening and sliding mechanism for wardrobe doors, with innovative and universal features such that the same mechanism may work for a wide variety of doors, without requiring custom-made solutions”, HITALFA srl & Smarrita Camilla design + NONESISTE DesignLab
- 2008 “Polymer active surfaces using shape memory alloys”, Agom International srl
- 2007 “Analysis of Actuators with Shape Memory Effects”, Nokia Corporation
- 2004 “Naval use of polyetheran composites”, Fast-Form S.r.l.
- 2003 “Design indications for rectangular pressure vessels”, Fedegari Autoclavi
- 2001 “Implementation of SMA constitutive models”, MSC Marc Software Corporation
- 1999 “Implementation of SMA constitutive models”, LS-Dyna Software Corporation
- 1997 “Functional adaptive composites”, Fiat Research Center

CURRENT INSTITUTIONAL TEACHING ACTIVITIES:

- **Introductory Computational Mechanics**, Civil Engineering program, University of Pavia
- **Constitutive Modeling of Materials**, Biomedical Engineering program, University of Pavia
- **Biomechanics & Biomedical Device Simulation**, Biomedical Engineering program, University of Pavia
- **3D printing: virtual modeling and additive manufacturing**, University of Pavia

PAST INSTITUTIONAL TEACHING ACTIVITIES (SELECTED):

- **Mechanics of Solids and Structures**, Civil Engineering program, University of Pavia
- **Mechanics of Solids and Structures**, Electrical Engineering program, University of Pavia

POST-GRADUATE TEACHING ACTIVITIES (SELECTED):

- **Nonlinear Computational Solid & Structural Mechanics: theoretical formulations, technologies, and computations** (in collaboration with F. Brezzi, R.L. Taylor, M. Bischoff, A. Reali, G. Sangalli):
 - Pavia, May 21-25, 2018
 - Pavia, May 16-20, 2016
 - Pavia, May 5-9, 2014
 - Pavia, April 16-20, 2012
 - Pavia, April 12-16, 2010
- 7th Summer School on “**Biomechanics of soft Tissues: multiscale modeling, simulation and applications**” Graz University of Technology, Austria July 4-8, 2016, coordinated by Gerhard A. Holzapfel and Ray W. Ogden
- **Advanced Finite Element Technologies, CISM** (in collaboration with D.Reddy, A.Huerta, P.Wriggers, J. Schroder, G.Starke), Udine, October 6 - 10, 2014
- **Nonlinear Computational Solid & Structural Mechanics: theoretical formulations, FEM technology and computations** (in collaboration with F. Brezzi, R.L. Taylor, A.Ibrahimbegovic) Pavia, May 14-18, 2007
- **Advanced Finite Element Methods for Continuum Mechanics** course within EUA4X European project (European Atelier for Engineering and Computational Sciences), series of lectures, 2006
- **Mixed Finite Element Technologies, CISM** (in collaboration with F.Armero, S.Brenner, R.Sacco, R.Stenberg, P.Wriggers) Udine, October 2005

RESEARCH TOPICS (SELECTED):

- **3D printing**: modeling of phenomena occurring during 3D printing at different scales and with different technologies (mainly, FDM & LSM), activation of a 3D printing lab with different technologies
- **Mixed finite elements**: development and analysis of finite element methods for Reissner-Mindlin plates, laminates, shells, locking problems in small and large deformation regimes
- **Material constitutive modeling**: static and dynamic response for low and high number of cycles (metals, polymers, rubbers), advanced materials (shape memory alloys and self-diagnosing materials)
- **Biomechanics**: constitutive laws for biological tissue, modeling and investigation of minimally invasive procedures (stenting) as well as invasive cardio-surgery procedures, generation of computational models from patient-specific medical images
- **Isogeometric analysis**: structural mechanics problems in small and large deformations

- **Fluid-structure interaction:** mathematical modeling and applications to hydraulics and cardiovascular applications
- **Fast/impact dynamics:** development of meshless numerical techniques, smoothed particle hydrodynamics (SPH) methods
- **Advanced materials for the reduction of seismic risk:** development of innovative devices

SUPERVISION OF YOUNG RESEARCHERS:

- **Currently supervisor of 4 Post-doc, 12 PhDs,** and 6 Master students
- **Past-supervisor of 8 Post-docs, 18 PhDs,** and more than 45 Master students
- Past foreign PhD students and PostDocs from: Canada, Israel, Iran, Taiwan, China, Argentina

ACCOMPLISHMENTS OF SUPERVISED RESEARCHERS (SELECTED):

Alessandro Reali

- 2016 IACM Fellows Award
- 2015 TUM-IAS Fischer Fellowship
- 2015 Thomson-Reuters Highly Cited Researcher
- 2015 Thomson-Reuters Highly Cited Researcher
- 2014 IACM Argyris Award
- 2013 AIMETA Junior Price
- 2012 ECCOMAS Zienkiewicz Award
- 2012 ECCOMAS Olympiad Award
- 2011 ECCOMAS best Italian Ph.D. dissertation
- 2010 ERC Starting grant

Michele Conti

- 2016 ESC (European Society of Cardiology) Research Grant
- 2014 E. Kieffer Prize. 6th International Congress Aortic Surgery and Anesthesia
- 2010 PhD thesis selected as the Italian candidate for ECCOMAS Award for the Best PhD Theses 2010

Simone Morganti

- 2014 Recipient of the Tissue Mechanics Prize awarded by the Centre for Mechanics of Biological Materials (CMBM) of the University of Padua
- 2012 Winner of ECCOMAS PhD Olympiad 2012 for the Best Thesis Presentation (Aveiro, Portugal)
- 2011 PhD thesis selected as the Italian candidate for ECCOMAS Award for the Best PhD Theses 2011.

Stefania Marconi

- 2014 Best Project Work Award within the project “INNO-TAL Talenti per l’innovazione globale e la professionalizzazione”, Fondazione Cariplo

CURRENT ACADEMIC POSITION OF SUPERVISED RESEARCHERS:

- 1 Full Professor (Alessandro Reali)
- 2 Associate Professors (Lorenza Petrini, Edoardo Artioli)
- 2 Assistant Professors (Michele Conti, Simone Morganti)

EXPERIMENTAL LABS (SELECTED):

All the listed labs are devoted to undergraduate, graduate, and post-graduate activities

- **Proto-lab:** created with the idea of providing a rapid-prototyping service, to realize a physical model directly from a virtual CAD model.
The laboratory is equipped with a Objet 30Pro 3D printer, able to print models in 7 different materials; a 3DSystems ProJet 460 Plus, a professional, full-color, binder jetting printer; a 3NTR A4v2, a professional FDM printer, dual Bowden extruder, able to process a very broad class of materials thanks to high temperature; a 3NTR A4v3, a professional FDM printer, triple Bowden extruder, hot chamber, able to print multi-material models; a Leapfrog Creatr HS, an FDM printer, dual Bowden extruder, particularly suitable for relatively high speeds printing of large objects with common materials; a Leapfrog Creatr, dual Direct extruder, especially suitable when printing low modulus filaments as thermoplastic

polyurethanes.

- **β-lab:** established as a collaboration between Pavia University, IRCCS San Donato, and CNR-IMATI Milan, it studies the cardiovascular fluid-dynamics within vitro models, aiming at supporting the clinical practice of vascular surgery and validating computational models. Indeed, the mission of the laboratory is to increase the clinical effectiveness of vascular surgical techniques.

The laboratory is equipped with a pulse-duplicator able to reproduce the cardiac output or the pressure/flow characteristic in specific district of the vasculature.

- **Active-lab:** focused on SMA-actuated applications development and testing, but also devoted to other actuation types, the characterization of SMA actuators is performed to find the best solution for each application. For this purpose, testing benchmarks for SMA wires and springs have been developed, in order to characterize them as electrically powered actuators.

The laboratory is equipped with a Z+ 20-10 power supply by TDK-Lambda, an EA-PS 3016-20 B power supply by EA Elektro-Automatik GmbH & Co., and with a high performance 6 ½ digits precision multimeter.

PATENTS UNDER EVALUATIONS:

- P.Canzi, M.Benazzo, S.Marconi, F.Auricchio (Inventors and Applicants), “Ring cochlear implant introducer”

FILED PATENTS

- D.Asprone, F.Auricchio, C.Menna (Inventors and Applicants), “Structure made of reinforced concrete and realization procedure through a 3D printing process”, Italian Patent n. 102016000077424, 2016
- U.Anselmi Tamburrini, F.Auricchio, S.Morganti (Inventors and Applicants), “Manufacture of ceramic objects”, PCT/EP2017/059932, WO 2018/196965
- P.Canzi, S.Marconi, F.Auricchio, M.Benazzo (Inventors and Applicants), “Temporal Bone Holder”, Italian Patent n. 102015000041482, 2015

GRANTED PATENTS:

- F.Sarchi, F.Ramaioli, G.Gusmano, F.Auricchio, F.Nanni, G.Forte (Inventors and Applicants), “Wireless structural health monitoring with elongated carbon fiber or matrix sensor”, European Patent n. WO2004IT00024 20040130, 2004
- F.Auricchio, R.Stanco, S.Pigazzani, Smarrita Camilla Design (Inventors and Applicants), “Networked structure and process and means for lifting and lowering the same”, European Patent n. WO2000IT00252 20000619, 2000

INVITED PRESENTATIONS TO INTERNATIONAL CONFERENCES AND/OR SCHOOLS (SINCE 2010):

- 2020 **Plenary Lecture**, “Additive manufacturing: opportunities and challenges”, 14th World Congress on Computational Mechanics and 8th European Congress on Computational Methods in Applied Sciences and Engineering, Paris (France)
- 2019 **Invited Lecture**, “Additive Manufacturing: modeling and computational challenges!!”, RAMSS2019-Recent Advances in Mechanics of Solids and Structures, Trento (Italy)
- 2019 **Invited lecture**, “Additive Manufacturing Graded-material Design based on Phase-field and Topology Optimization”, International Workshop on Recent advances in Phase-Field modeling: from Engineering to Biology, Università di Pavia, Pavia (Italy)
- 2019 **Invited Lecture**, “Advanced numerical methods in additive manufacturing applications”, High Order Finite Elements and Isogeometric Methods (HOFEIM), Pavia (Italy)
- 2019 **Invited Lecture**, “Highlights of 3D printing technology: applications in head and neck surgery”, 106^o Congresso Nazionale Società Italiana di Otorinolaringologia e Chirurgia Cervico-Facciale (SIOeChCF), Rimini (Italy)
- 2019 **Invited Lecture**, International Conference Dynamics, Equations and Applications (DEA 2019), Krakow, (Poland)
- 2019 **Invited Lecture**, Mathematical modeling and Analysis of degradation and restoration in Cultural Heritage, INdAM Workshop MACH2019, Roma (Italy) “Additive Manufacturing: modeling and computational challenges!!”
- 2018 **Invited Lecture**, Kármán Conference on "Additive Fabrication of Interactive Material Systems" Colone (Germany)

- 2018 **Plenary Lecture**, First International Conference on Mechanics of Advanced Materials and Structures, Torino (Italy), “Additive Manufacturing: materials and computational mechanics”
- 2018 **Invited Lecture**, Workshop on Special Materials and Complex Systems, “Additive Manufacturing: a whole set of open problems to be solved !!”, Gargnano (Italy)
- 2017 **Keynote speech**, IEEE "Forum on Research and Technologies for Society and Industry", thematic session on “Digital Fabrication & Digital Manufacturing”, Modena (Italy), “Additive manufacturing: from prototypes to products”
- 2017 **Plenary Lecture**, IEEE MTT-S International Microwave Workshop Series on Advanced Materials and Processes (IMWS-AMP 2017), Pavia, Italy, “The magic world of 3D printing”
- 2017 **Plenary Lecture**, VII International Conference on Coupled Problems in Science and Engineering, Rodes (Greece), “Micro and macro simulations of additive manufacturing processes”
- 2017 **Invited Lecture**, Maths from the Body, Workshop, Brescia (Italy), “Virtual endograft deployment in the thoracic aorta as predictor of TEVAR migration”
- 2017 **Invited Lecture**, Mathematical Modeling for the Circulatory System Models, Equations, Applications, Verona (Italy), “An advanced example of computer aided clinical trial: the iCardioCloud Project”
- 2017 **Invited Lecture**, Stampa 3D in Medicina: regole, tutele, mercato e formazione, Bologna (Italy), “Stampa 3D in Chirurgia Generale e Chirurgia Vascolare”
- 2017 **Invited Lecture**, Symposium on Integrated Data Assimilation, within SimTech Cluster of Excellence, Stuttgart (Germany), “3D PRINTING: a bridge to the future with many open (computational) issues”
- 2016 **Invited Lecture**, Ordine degli Ingegneri di Pavia, Pavia (Italy), “Stampanti 3D. Una tecnologia abilitante con applicazioni dal manifatturiero avanzato alla chirurgia”
- 2016 **Invited Lecture**, Giornata di Studio Leghe a Memoria di Forma: materiali per l’innovazione di prodotti biomedicali e industriali, Milano (Italy), “Modellazione costitutiva ed implementazione numerica: effetto memoria di forma, superelasticità e simulazione di dispositivi SMA”
- 2016 **Plenary Lecture**, GIMC 2016, XXI Italian Conference on Computational Mechanics, Lucca (Italy) “3D printing: a bridge to the future”
- 2016 **Invited Instructional Lecture Sessions**, 17th EFORT Congress, Geneva (Switzerland), “3D Printing: Clinical Applications In Orthopaedics And Traumatology”
- 2016 **Plenary Lecture**, MAFELAP 2016, 15th Conference on the Mathematics of Finite Elements and Applications, Brunel University, UK
- 2016 **Invited Lecture**, 2016 International Workshop on Multiscale Innovative Materials and Structures (MIMS16), Cetara, Salerno, Italy, “The use of 3D Printing for the development of Innovative Materials and Structures”
- 2015 **Plenary Lecture**, International Conference on Biomedical Technology 2015, Hannover (Germany) “Simulation of endovascular surgery: from medical images to clinical reality through computational and experimental biomechanics”
- 2015 **Invited Lecture**, 117^o Congresso Nazionale della Società Italiana di Chirurgia, Milano (Italy), “Stampanti 3D”
- 2015 **Invited Lecture**, XIV Congresso Nazionale della Società Italiana di Chirurgia Vascolare ed Endovascolare, Milano (Italy), “Ricerca traslazionale”
- 2015 **Invited Lecture**, PRIN meeting on Cardiovascular Modeling, Politecnico di Milano (Italy), “Prediction of EVAR outcome by means of computational models and validation”
- 2015 **Invited Seminar**, Università di Napoli Federico II, Napoli (Italy), “Mechanics of Solids: from beam theory to rapid prototyping for surgery planning”
- 2015 **Plenary Lecture**, 7th ECCOMAS Thematic Conference on Smart Structures and Materials, “Shape memory alloys: from recent modeling proposals to cardiovascular device simulations”
- 2015 **Plenary Lecture**, 86th Annual Meeting of GAMM (International Association of Applied Mathematics and Mechanics)
- 2014 **Invited Lecture**, MAC 2014, 4th Munich Aortic and Carotid Conference, Munich (Germany), “Prediction of EVAR outcome by means of computational models”
- 2014 **Invited Seminar**, Laboratoire de Mécanique des Solides, Ecole Polytechnique, Paris (France), “Shape-Memory Alloys: 3D Constitutive Modeling and Biomedical Device Investigation”
- 2013 **Invited Lecture**, Euromech 548 Innovations in Mechanics and in Civil Engineering, Amboise (France), “Shape-Memory Alloys: 3D Constitutive Modeling and Biomedical Device Investigation”

- 2013 **Keynote Lecture**, Coupled Problems 2013, Ibiza (Spain), “On strong imposition of Dirichlet boundary conditions in unfitted finite element methods with application to fluid dynamics”
- 2012 **Semi-Plenary**, 6th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS), Vienna (Austria), “Approximations of incompressible large deformation elastic problems: some unresolved issues!”
- 2012 **Keynote Lecture**, MSE 2012, Darmstadt (Germany), Symposium “A6 - Modern Aspects in Structural Phase Transformations”, “Shape Memory Alloys: some recent developments on 3D constitutive modeling and biomedical device investigation”
- 2012 **Invited series of lectures**, “Modelli e metodi computazionali per materiali innovative con applicazione alle leghe a memoria di forma”, Università di Napoli Federico II, Napoli (Italy)
- 2012 **Invited Lecture**, MIMES, Gruppo di Lavoro AIAS MIMEMS “Materiali Intelligenti e MEMS”, “Recenti sviluppi modellistici per attuatori”
- 2012 **Plenary Lecture**, ESMC 2012, 8th European Solid Mechanics Conference, Graz (Austria), “Shape-Memory Alloys: 3D Constitutive Modeling and Biomedical Device Investigation”
- 2012 **Invited Lecture**, Advanced Computational Engineering Workshop, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach (Germany), “Approximations of incompressible large deformation elastic problems: some unresolved issues!”
- 2011 **Invited Lecture**, ASME 2011 Conference on Smart Materials Adaptive Structures and Intelligent Systems, Scottsdale, Arizona (USA), “Recent Developments on the 3D Modeling of SMA”
- 2011 **Keynote Lecture**, ECCOMAS Thematic Conference: COMPDYN 2011, 3rd International Conference on Computational Methods in Structural Dynamics & Earthquake Engineering, Corfu (Greece), “Elasticity and elasto-plasticity 2D problems addressed via a novel finite particle formulation”
- 2010 **Invited Lecture**, AIM 2010, Brescia, “Shape-memory alloys: effective 3D modeling, computational aspects and analysis of actuator and biomedical devices”
- 2010 **Invited Lecture**, So.pa.chi.va.la.me. 2010, Napoli, “Computer-based simulation of carotid artery stenting: a first step towards a virtual procedure planning”
- 2010 **Keynote Lecture**, Smart Structural System Technologies (S3T), Porto (Portugal), “On the constitutive modeling and numerical implementation of shape memory alloys under multiaxial loadings - Part I: Constitutive model development at small and finite strains”
- 2010 **Invited Lecture**, Smart Structural System Technologies (S3T), Porto (Portugal), “On the constitutive modeling and numerical implementation of shape memory alloys under multiaxial loadings - Part II: numerical implementation and simulations”
- 2010 **Invited Lecture**, First joint Workshop Polimeri Europa and Engineering Faculty of the University of Pavia, Mantova (Italy), “On some current activities in computational mechanics and advanced materials modeling”
- 2010 **Semi-plenary Lecture**, 4th European Conference on Computational Mechanics (Solids, Structures and Coupled Problems in Engineering), Paris (France), “Shape-memory alloys: effective 3D modeling, computational aspects and biomedical device analysis”

INVITED LECTURES AND/OR SEMINARS (SINCE 2010):

- 2019 **Invited Seminar**, “Additive Manufacturing: modeling and structural optimization procedures!!!”, Dipartimento di Ingegneria Civile, Ambientale e Meccanica, Università di Trento, Trento (Italy)
- 2019 **Key-note speech**, AITA, Cinisello Balsamo (Italy), “Applicazioni delle tecnologie additive nel settore biomedicale”
- 2018 “Shape Memory Alloys” “Part 1: An introduction to shape memory alloys: material response, applications, and simple constitutive modeling”, “Part 2: Shape memory alloys: advanced constitutive modeling and numerical simulations of devices” ILT Fraunhofer, Aachen (Germany)
- 2018 “Protolab Activities: from Medical Field to Mechanical Characterization ... up to Numerical Simulations, ILT Fraunhofer, Aachen (Germany)
- 2017 **Invited Lecture**, EU Regional School 2017 in Computational Engineering Science, AICES Institute, RWTH Aachen, Germany, “3D Printing: some experimental and computational investigations”

ORGANIZATION OF INTERNATIONAL & NATIONAL CONFERENCES:

- 2019 SIM-AM, ECCOMAS Thematic Conference on Simulation for Additive Manufacturing (co-chair), Pavia (Italy)

- 2018 Second Italian IDBN Conference, Pavia (Italy)
- 2018 13th World Congress on Computational Mechanics, New York City (USA)
- 2017 First Italian IDBN Conference, Bologna (Italy)
- 2017 SIM-AM, ECCOMAS Thematic Conference on Simulation for Additive Manufacturing (co-chair), Munich (Germany)
- 2017 IGA, ECCOMAS Thematic Conference on Isogeometric Analysis (co-chair), Pavia (Italy)
- 2015 PLAST, Conference on Stampa 3D nel medicale: tecnologie, applicazioni ed aspetti regolatori, Milano (Italy)
- 2015 3D-PRINTHUB, 1st 3D Printing Italian Meeting in Medical and in Orthopedics and Traumatology, Milano (Italy)
- 2011 SMART, ECCOMAS Thematic Conference on Smart Structures and Materials, Saarbrücken (Germany)
- 2009 MULTIMAT, Numerical Methods for Multi-Material Fluids and Structures, Pavia (Italy)
- 2008 WCCM-ECCOMAS, 8th World Congress on Computational Mechanics and 5th European Congress on Computational Methods in Applied Sciences and Engineering, Venice (Italy)
- 2008 SMST, International Conference on Shape Memory and Superelastic Technologies, Stresa (Italy)
- 2006 SMARTeR, Shape Memory Alloys to Regulate Transient Responses in civil engineering, Pavia (Italy)
- 2000 ESOMAT, 5th European symposium on martensitic transformations and shape memory alloys, Como (Italy)

ORGANIZATION OF SESSION OR MINI-SYMPOSIUM IN INTERNATIONAL & NATIONAL CONFERENCES (SELECTED):

- 2020 ICTAM, 25th International Congress of Theoretical and Applied Mechanics, Milan (Italy), co-chair of the mini-symposium on “Mechanics of Additive Manufacturing”
- 2019 Conference on Automation Innovation in Construction (CIAC2019), Leiria, Portugal
- 2018 XX Congresso IORS-Italian Orthopedic Research Society, La medicina di precisione e l’Ortopedia, Pavia (Italy), session on “3D printing and design of prosthesis implants”
- 2018 WCCM, 13th World Congress on Computational Mechanics, New York City (USA), mini-symposium on “Modeling and Simulation for Additive Manufacturing”
- 2017 IEEE MTT-S International Microwave Workshop Series on Advanced Materials and Processes, Pavia (Italy), mini-symposium on “Additive Manufacturing: innovative materials and applications”
- 2017 ICBT, International Conference on Biomedical Technology, Hannover (Germany), mini-symposium on “Simulations for cardiovascular diagnosis and treatment: from computer through devices to bedside”
- 2017 COMPLAS, 14th International Conference on Computational Plasticity, Barcelona (Spain), mini-symposium on “Computational Biomechanics”
- 2017 SIAM, Conference on Computational Science and Engineering, Atlanta (GE, USA)
- 2016 ECCOMAS Congress, Crete (Greece), Mini-symposium on “Simulation of Cardiovascular Procedures and Devices” European Congress on Computational Methods in Applied Sciences and Engineering
- 2012 ICTAM, 23rd International Congress of Theoretical and Applied Mechanics, Beijing (China), co-chair with prof. Eliot Fried (McGill University, Canada) for the Pre-Nominated Session (PNS) on “Mechanics of phase transformations”
- 2011 COMPDYN, 3rd International Conference on Computational Methods in Structural Dynamics & Earthquake Engineering, Corfù (Greece), Minisymposium on “Meshless Methods”

SCIENTIFIC BOARD OF INTERNATIONAL CONFERENCES (SINCE 2010):

- 2019 AMMM, International Conference on “Additive Manufacturing Meets Medicine”, Lübeck, Germany (member of the program committee)
- 2019 IUTAM Symposium on “Phase Transformation in Shape Memory Materials: Modeling and Applications” Austin (USA)
- 2019 FEF, 20th International Conference on Finite Elements in Flow Problems, member of the Additive Manufacturing sub-Committee, Chicago (USA).
- 2019 CMBE, 6th International Conference on Computational and Mathematical Biomedical Engineering, Sendai City (Japan)
- 2019 COMPLAS, 15th International Conference on Computational Plasticity, Barcelona (Spain)

- 2019 COUPLED, 8th International Conference on Computational Methods for Coupled Problems in Science and Engineering, Sitges (Spain)
- 2018 XX Congresso IORS-Italian Orthopedic Research Society, La medicina di precisione e l'Ortopedia, Pavia (Italy)
- 2018 ICOMP, 3rd International Conference on Computational Methods in Manufacturing Processes, Barcelona (Spain)
- 2018 ECCM 6 & ECFD 7, 6th European Conference on Computational Mechanics (Solids, Structures and Coupled Problems) and 7th European Conference on Computational Fluid Dynamics – Glasgow (Scotland, UK)
- 2017 IEEE MTT-S, International Microwave Workshop Series on Advanced Materials and Processes, Technical Program Committee Member, Pavia (Italy)
- 2017 CSMA, French National Workshop on Structural Computation, Giens Peninsula (France)
- 2017 ICBT, International Conference on Biomedical Technology, Hannover (Germany)
- 2017 CMBE, 5th International Conference on Computational and Mathematical Biomedical Engineering, University of Pittsburgh, Pennsylvania (USA)
- 2017 SMART, 8th ECCOMAS Thematic Conference on Smart Structures and Materials, Scientific Committee Member, Madrid (Spain)
- 2016 10th International Conference on Mechanics of Time Dependent Materials, Paris (France)
- 2016 CIMTEC, 5th International Conference “Smart and Multifunctional Materials, Devices, Structures”, International Advisory Board of Symposium B “State-of-the-art Research and Applications of Shape Memory Alloys”, Perugia (Italy)
- 2015 PANACM, Pan-American Congress on Computational Mechanics, Buenos Aires (Argentina)
- 2015 ICCB, VI International Conference on Computational Bioengineering, Barcelona (Spain)
- 2015 CSMA, French National Conference in Computational Structural Mechanics, Giens Peninsula (France)
- 2014 MAC, 4th Munich Aortic and Carotid Conference, Munich (Germany)
- 2013 SEECM III, III South-East European Conference on Computational Mechanics, Kos (Greece)
- 2013 SMST, European SMST (Shape Memory and Superelastic Technologies) Conference, Prague (Czech Republic)
- 2012 WCCM, 10th World Congress on Computational Mechanics, Sao Paulo (Brazil)
- 2012 CIMTEC, 4th International Conference on “Smart Materials, Structures and Systems”, Advisory Board of Symposium B “State-of-the-Art Research and Application of SMAs Technologies”, Montecatini Terme (Italy)
- 2012 YIC, First European Community on Computational Methods in Applied Sciences (ECCOMAS) Young Investigators Conference, Aveiro (Portugal)
- 2011 TCCM, Trends & Challenges in Computational Mechanics, Padova (Italy)
- 2011 SMART, 5th ECCOMAS Thematic Conference on Smart Structures and Materials, Saarbrucken (Germany)
- 2011 ASEM, World Congress on Advances in Structural Engineering and Mechanics, Seoul (Korea)
- 2011 COMPDYN, Computational Methods in Structural Dynamics and Earthquake Engineering, Corfu (Greece)
- 2010 GIMC, XVIII Convegno Italiano di Meccanica Computazionale, Siracusa (Italy)
- 2010 S3T, Smart Structural Systems Technologies, Porto (Portugal)
- 2010 Tenth International Conference on Computational Structures Technology, Valencia (Spain)

OTHER ACCOMPLISHMENTS:

- Faculty member at the event “Advanced TEVAR Symposium” Università di Milano, Milano, March 2019
- Founder member of the Italian Digital Biomanufacturing Network (IDBN), June 2015
- Participation member at the Round Table on “Health, Environment and lifestyles: Is Italy a champion in sustainable wellness?” organized by the Italian Aspen Institute, July 2014, Brescia
- Adjunct Professor, Department of Engineering Mathematics and Internetworking, Faculty of Engineering, Dalhousie University, Canada, 2010
- Adjunct Professor, Faculty of Graduate Studies at Dalhousie, Dalhousie University, Canada, 2010
- Guest Editor for a special issue of "International Journal for Numerical Methods in Fluids" (with dr. Guglielmo Scovazzi, Sandia National Laboratories, USA) collecting contributions from the conference "Numerical Methods for Multimaterial Flows and Structures" held in Pavia, Italy, 2009

- Lectio Magistralis for the Laurea Honoris Causa in Civil Engineering given by University of Pavia to professor Thomas J.R. Hughes, Pavia, Italy, September 24, 2007
- Semifinalist to the 6th Robert J. Melosh Medal Competition for the “Best student paper on finite-element analysis”, Duke University (USA) 1994. Invited to give a lecture at Duke University on “A triangular thick plate with an exact thin limit”, 1994

PUBLICATIONS ON INTERNATIONAL JOURNALS

1. A. Finotello, S. Marconi, B. Pane, M. Conti, V. Gazzola, S. Mambrini, F. Auricchio, D. Palombo, G. Spinella. “Twelve-year Follow-up Post–Thoracic Endovascular Repair in Type B Aortic Dissection Shown by Three-dimensional Printing”, *Annals of Vascular Surgery*, 55: 309.e13-309.e19 (2019)
2. A. Ferrigno , F. Di Caprio, R. Borrelli, F. Auricchio, A. Vigliotti. “The mechanical strength of Ti-6Al-4V columns with regular octet microstructure manufactured by electron beam melting”, *Materialia* (2019), doi: 10.1016/j.mtla.2019.100232
3. F. Auricchio, M. Conti, R.M. Romarowski, H.W. De Beaufort, V. Grassi, S. Trimarchi. “Computational tools for thoracic endovascular aortic repair planning”, *Italian Journal of Vascular and Endovascular Surgery*, 26 (1): 51-58 (2019)
4. T. Hoang, C.V. Verhoosel, C.Z. Qin, F. Auricchio, A. Reali, E.H. van Brummelen. “Skeleton-stabilized immersogeometric analysis for incompressible viscous flow problems”, *Computer Methods in Applied Mechanics and Engineering*, 344: 421-450 (2019)
5. L. Casagrande, A. Bonati, A. Occhiuzzi, N. Caterino, F. Auricchio. “Numerical investigation on the seismic dissipation of glazed curtain wall equipped on high-rise buildings”, *Engineering Structures*, 179: 225-245 (2019)
6. L. Casagrande, J. Sisinni, A. Bonati, A. Occhiuzzi, F. Auricchio. “Integrated shape memory alloy devices toward a high-performance glazed curtain wall seismic retrofit”, *Engineering Structures*, 179: 540-555 (2019)
7. D.S. Branciforti, S. Lazzaroni, C. Milanese, M. Castiglioni, F. Auricchio, D. Pasini, D. Dondi. “Visible light 3D printing with epoxidized vegetable oils”, *Additive Manufacturing*, 25: 317-324 (2019)
8. A. Cattenone, S. Morganti, G. Alaimo, F. Auricchio. “Finite Element Analysis of Additive Manufacturing Based on Fused Deposition Modeling: Distortions Prediction and Comparison With Experimental Data”, *Journal of Manufacturing Science and Engineering-Transactions of the ASME*, 141 (1): 011010 (2019)
9. M. Conti, S. Vandenberghe, S. Marconi, E. Ferrari, R.M. Romarowski, S. Morganti, F. Auricchio, S. Demertzis. “Reversed Auxiliary Flow to Reduce Embolism Risk During TAVI: A Computational Simulation and Experimental Study”, *Cardiovascular Engineering and Technology*, 10 (1): 124-135 (2019)
10. V.M. Belvroy, R.M. Romarowski, J.A. van Herwaarden, J. Bismuth, F. Auricchio, F.L. Moll, S. Trimarchi. “Computational Fluid Dynamics in Descending Thoracic Aortic Aneurysm: Tortuosity Associated With High Displacement Forces, *Journal of Vascular Surgery*”, 69 (3): E34-E34 (2019)
11. A. Montanino, D. Asprone, A. Reali, F. Auricchio. “A Least Square Residual version of the Modified Finite Particle Method to solve saddle point problems: Application to stationary Stokes and Navier-Stokes equations”, *International Journal of Mechanical Sciences*, 150: 176-187 (2019)
12. S. Kollmannsberger, M. Carraturo, A. Reali, F. Auricchio. “Accurate Prediction of Melt Pool Shapes in Laser Powder Bed Fusion by the Non-Linear Temperature Equation Including Phase Changes”, *Integrating Materials and Manufacturing Innovation* (2019), doi: 10.1007/s40192-019-00132-9
13. G. Alaimo, F. Auricchio, S. Marfia, E. Sacco. “Optimization clustering technique for PieceWise Uniform Transformation Field Analysis homogenization of viscoplastic composites”, *Computational Mechanics* (2019), doi: 10.1007/s00466-019-01730-2
14. O.I. Hassan, A. Ghavamian, C.H. Lee, A.J. Gil, J. Bonet, F. Auricchio. “An upwind vertex centred finite volume algorithm for nearly and truly incompressible explicit fast solid dynamic applications: Total and Updated Lagrangian formulations”, *Journal of Computational Physics* (2019), doi: 10.1016/j.jcp.2019.100025

15. G. Spinella, A. Finotello, B. Pane, G. Salsano, S. Mambrini, A. Kamenskiy, V. Gazzola, G. Cittadini, F. Auricchio, D. Palombo, M. Conti. "In Vivo Morphological Changes of the Femoropopliteal Arteries due to Knee Flexion After Endovascular Treatment of Popliteal Aneurysm", *Journal of Endovascular Therapy* (2019), doi: 10.1177/1526602819855441
16. G. Scalet, F. Niccoli, C. Garion, P. Chiggiato, C. Maletta, F. Auricchio. "A three-dimensional phenomenological model for shape memory alloys including two-way shape memory effect and plasticity", *Mechanics of Materials* (2019), doi: 10.1016/j.mechmat.2019.103085
17. D. Asprone, F. Auricchio, C. Menna, V. Mercuri. "3D printing of reinforced concrete elements: Technology and design approach", *Construction and Building Materials*, 165: 218-231 (2018)
18. A. Sibileau, A. García-González, F. Auricchio, S. Morganti, P. Díez. "Explicit parametric solutions of lattice structures with Proper Generalized Decomposition (PGD): Applications to the design of the 3D-printed architecture materials", *Computational Mechanics*, 62 (4): 871-891 (2018)
19. S. Morganti, C. Callari, F. Auricchio, A. Reali. "Mixed isogeometric collocation methods for the simulation of poromechanics problems in 1D", *Meccanica*, 53 (6): 1441-1454 (2018)
20. F. Xu, S. Morganti, R. Zakerzadeh, D. Kamensky, F. Auricchio, A. Reali, T.J.R. Hughes, M.S. Sacks, M.C. Hsu. "A framework for designing patient-specific bioprosthetic heart valves using immersogeometric fluid–structure interaction analysis", *International Journal for Numerical Methods in Biomedical Engineering*, 34 (4): e2938 (2018)
21. H.W.L. De Beaufort, A. Ferrara, M. Conti, F.L. Moll, J.A. van Herwaarden, C.A. Figueroa, J. Bismuth, F. Auricchio, S. Trimarchi. "Comparative Analysis of Porcine and Human Thoracic Aortic Stiffness", *European Journal of Vascular and Endovascular Surgery*, 55 (4): 560-566 (2018)
22. A. Ferrara, P. Totaro, S. Morganti, F. Auricchio. "Effects of clinico-pathological risk factors on in-vitro mechanical properties of human dilated ascending aorta", *Journal of the Mechanical Behavior of Biomedical Materials*, 77: 1-11 (2018)
23. X. Zou, M. Conti, P. Diez, F. Auricchio. "A non-intrusive proper generalized decomposition scheme with application in biomechanics", *International Journal for Numerical Methods in Engineering*, 113 (2): 230-251 (2018)
24. N.G. Ceffa, M. Bouzin, L. D'Alfonso, L. Sironi, C.A. Marquezin, F. Auricchio, S. Marconi, G. Chirico, M. Collin. "Spatiotemporal Image Correlation Analysis for 3D Flow Field Mapping in Microfluidic Devices", *Analytical Chemistry*, 90 (3): 2277-2284 (2018)
25. J.E. Dufour, P. Antolin, G. Sangalli, F. Auricchio, A. Reali. "A cost-effective isogeometric approach for composite plates based on a stress recovery procedure", *Composites Part B: Engineering*, 138: 12-18 (2018)
26. M.M. Marrocco-Trischitta, T.M. van Bakel, R.M. Romarowski, H.W. de Beaufort, M. Conti, J.A. van Herwaarden, F.L. Moll, F. Auricchio, S. Trimarchi. "The Modified Arch Landing Areas Nomenclature (MALAN) Improves Prediction of Stent Graft Displacement Forces: Proof of Concept by Computational Fluid Dynamics Modelling", *European Journal of Vascular and Endovascular Surgery*, 55 (4): 584-592 (2018)
27. E. M. Marone, L. Rinaldi, S. Marconi, M. Conti, F. Auricchio, A. Pietrabissa, A. Argenterì. "A 3D-printed patient-specific model to assist decision making in endovascular treatment of thoraco-abdominal aortic aneurysm", *The Journal of Cardiovascular Surgery*, 59 (2): 291-293 (2018)
28. A. Montanino, D. Asprone, A. Reali, F. Auricchio. "Modified Finite Particle Methods for Stokes problems", *Computational Particle Mechanics*, 5 (2): 141-160 (2018)
29. G. Alaimo, F. Auricchio, I. Bianchini, E. Lanzarone. "Applying functional principal components to structural topology optimization", *International Journal for Numerical Methods in Engineering*, 115 (2): 189-208 (2018)
30. R.M. Romarowski, E. Faggiano, M. Conti, A. Reali, S. Morganti, F. Auricchio. "A novel computational framework to predict patient-specific hemodynamics after TEVAR: integration

- of structural and fluid-dynamics analysis by image elaboration”, *Computers and Fluids* (2018), doi: 10.1016/j.compfluid.2018.06.002
31. R.M. Romarowski, A. Lefieux, S. Morganti, A. Veneziani, F. Auricchio. “Patient-specific CFD modelling in the thoracic aorta with PC-MRI-based boundary conditions: A least-square three-element Windkessel approach”, *International Journal for Numerical Methods in Biomedical Engineering*, 34 (11): e3134 (2018)
 32. M. Peigney, G. Scalet, F. Auricchio. “A time integration algorithm for a 3D constitutive model for SMAs including permanent inelasticity and degradation effects”, *International Journal for Numerical Methods in Engineering*, 115 (9), 1053-1082 (2018)
 33. G.M. Formato, M. Lo Rito, F. Auricchio, A. Frigiola, M. Conti. “Aortic Expansion Induces Lumen Narrowing in Anomalous Coronary Arteries: A Parametric Structural Finite Element Analysis”, *Journal of Biomechanical Engineering*, 140 (11): 111008 (2018)
 34. L. Pugliese, S. Marconi, E. Negrello, V. Mauri, A. Peri, V. Gallo, F. Auricchio, A. Pietrabissa. “The clinical use of 3D printing in surgery”, *Updates in Surgery*, 70 (3): 381-388 (2018)
 35. J. Kiendl, F. Auricchio, A. Reali. “A displacement-free formulation for the Timoshenko beam problem and a corresponding isogeometric collocation approach”, *Meccanica*, 53 (6): 1403-1413 (2018)
 36. P.F. Espin-Lopez, M. Pasian, G. Alaimo, S. Marconi, F. Auricchio, V. Heinänen, J. Järveläinen. “3D-printed Antenna for Snowpack Monitoring”, *IEEE Antennas and Wireless Propagation Letters*, 17 (11): 2109-2113 (2018)
 37. E.M. Marone, F. Auricchio, S. Marconi, M. Conti, L.F. Rinaldi, A. Pietrabissa, A. Argenterì. “Effectiveness of 3D printed models in the treatment of complex aortic disease”, *Journal of Cardiovascular Surgery*, 59 (5): 699-706 (2018)
 38. S. Marconi, E. Lanzarone, G.H.W. van Bogaerijen, M. Conti, F. Secchi, S. Trimarchi, F. Auricchio. “A compliant aortic model for in vitro simulations: Design and manufacturing process”, *Medical Engineering and Physics*, 59: 21-29 (2018)
 39. G. Spinella, A. Finotello, E. Faggiano, B. Pane, M. Conti, V. Gazzola, F. Auricchio, D. Palombo. “Midterm Follow-up Geometrical Analysis of Thoracoabdominal Aortic Aneurysms Treated with Multilayer Flow Modulator”, *Annals of Vascular Surgery*, 53: 97-104 (2018)
 40. T. Hoang, C.V. Verhoosel, F. Auricchio, E.H. van Brummelen, A. Reali. “Skeleton-stabilized IsoGeometric Analysis: High-regularity interior-penalty methods for incompressible viscous flow problems”, *Computer Methods in Applied Mechanics and Engineering*, 337: 324-351 (2018)
 41. G. Scalet, F. Auricchio. “Computational methods for elastoplasticity: an overview of conventional and less-conventional approaches”, *Archives of Computational Methods in Engineering*, 25 (3): 545-589 (2018)
 42. F. Auricchio, M. Ferretti, A. Lefieux, M. Musci, A. Reali, S. Trimarchi, A. Veneziani. “Parallelizing a finite element solver in computational hemodynamics: a black box approach”. *International Journal of High Performance Computing Applications*, 32 (3): 351-362 (2018)
 43. R.M. Romarowski, M. Conti, S. Morganti, V. Grassi, M.M. Marrocco-Trischitta, S. Trimarchi, F. Auricchio. “Computational simulation of TEVAR in the ascending aorta for optimal endograft selection: A patient-specific case study”, *Computers in Biology and Medicine*, 103: 140-147 (2018)
 44. F. Nappi, L. Mazzocchi, S.S. Avtaar Singh, S. Morganti, J-L. Sablayrolles, C. Acar, F. Auricchio. “Complementary Role of the Computed Biomodelling through Finite Element Analysis and Computed Tomography for Diagnosis of Transcatheter Heart Valve Thrombosis”, *BioMed Research International*, 218: 1346308 (2018)
 45. A. Nenna, S.S. Avtaar Singh, S. Morganti, L. Mazzocchi, F. Auricchio, M. Chello, F. Nappi. “Transcatheter Technologies for Valvular Replacement: an Update”, *Surgical Technology International*, 32: 190-199 (2018)
 46. G. Scalet, C. Menna, A. Constantinescu, F. Auricchio. “A computational approach based on a

- multiaxial fatigue criterion combining phase transformation and shakedown response for the fatigue life assessment of Nitinol stents”, *Journal of Intelligent Material Systems and Structures*, 29 (19): 3710-3724 (2018)
47. G. Scalet, S. Pandini, M. Messori, M. Toselli, F. Auricchio. “A one-dimensional phenomenological model for the two-way shape-memory effect in semi-crystalline networks”, *Polymer*, 158: 130-148 (2018)
 48. M. Conti, S. Marconi, G. Muscogiuri, M. Guglielmo, A. Baggiano, G. Italiano, M.E. Mancini, F. Auricchio, D. Andreini, M.G. Rabbat, A.I. Guaricci, G. Fassini, A. Gasparetti, F. Costa, C. Tondo, A. Maltagliati, M. Pepi, G. Potone. “Left atrial appendage closure guided by 3D computed tomography printing technology: A case control study”, *Journal of Cardiovascular Computed Tomography* (2018), doi: 10.1016/j.jcct.2018.10.024
 49. G. Spinella, A. Finotello, M. Conti, E. Faggiano, V. Gazzola, F. Auricchio, N. Chakfé, D. Palombo, B. Pane. “Assessment of geometrical remodelling of the aortic arch after hybrid treatment”, *European Journal of Cardio-Thoracic Surgery* (2018), doi: 10.1093/ejcts/ezy397
 50. G. Balduzzi, M. Aminbaghai, F. Auricchio, J. Füssl. “Planar Timoshenko-like model for multilayer non-prismatic beams”, *International Journal of Mechanics and Materials in Design*, 14 (1): 51-70 (2018)
 51. P. Canzi, S. Marconi, M. Manfrin, M. Magnetto, C. Carelli, A.M. Simoncelli, D. Fresa, M. Beltrame, F. Auricchio, M. Benazzo. “From CT scanning to 3D printing technology: a new method for the preoperative planning of a transcutaneous bone-conduction hearing device”, *Acta Otorhinolaryngologica Italica*, 38 (3): 251-256 (2018)
 52. T.M. van Bakel, R.M. Romarowski, S. Morganti, J.A. van Herwaarden, F.L. Moll, H.W. de Beaufort, M.M. Marrocco-Trischitta, F. Secchi, M. Conti, F. Auricchio, S. Trimarchi. “Blood Flow after Endovascular Repair in the Aortic Arch: A Computational Analysis”, *Aorta*, 6 (3): 81-87 (2018)
 53. S. Marconi, E. Lanzarone, H. De Beaufort, M. Conti, S. Trimarchi, F. Auricchio. “A novel insight into the role of entry tears in type B aortic dissection: pressure measurements in an in vitro model”, *International Journal of Artificial Organs*, 40 (10): 563-574 (2017)
 54. G. Balduzzi, S. Morganti, F. Auricchio, A. Reali. “Non-prismatic Timoshenko-like beam model: Numerical solution via isogeometric collocation”, *Computers & Mathematics with Applications*, 74 (7): 1531-1541 (2017)
 55. G. Rigamonti, M. Guardamagna, V. Bello, S. Marconi, F. Auricchio, S. Merlo. “Flow-through micro-capillary refractive index sensor based on T/R spectral shift monitoring”, *Biomedical Optics Express*, 8 (10): 4438-4453 (2017)
 56. F.J.H. Nauta, H.W.L. de Beaufort, M. Conti, S. Marconi, A.V. Kamman, A. Ferrara, J.A. van Herwaarden, F.L. Moll, F. Auricchio, S. Trimarchi. “Impact of thoracic endovascular aortic repair on radial strain in an ex vivo porcine model”, *European Journal of Cardio-Thoracic Surgery*, 51 (4): 783-789 (2017)
 57. R. Dorati, A. De Trizio, S. Marconi, A. Ferrara, F. Auricchio, I. Genta, T. Modena, M. Benazzo, A. Benazzo, G. Volpato, B. Conti. “Design of a Bioabsorbable Multilayered Patch for Esophagus Tissue Engineering”, *Macromolecular Bioscience*, 17 (6): 1600426 (2017)
 58. E. Massoni, L. Silvestri, G. Alaimo, S. Marconi, M. Bozzi, L. Perregrini, F. Auricchio. “3D-Printed Substrate Integrated Slab Waveguide for Single-Mode Bandwidth Enhancement”, *IEEE Microwave and Wireless Components Letters*, 27 (6): 536-538 (2017)
 59. F.J.H. Nauta, G.H.W. Van Bogerijen, M. Conti, C. Trentin, F.L. Moll, J.A. Van Herwaarden, F. Auricchio, S. Trimarchi. “Impact of Thoracic Endovascular Repair on Pulsatile Aortic Strain in Acute Type B Aortic Dissection: Preliminary Results”, *Aorta*, 5 (2): 42-52 (2017)
 60. H.W.L. De Beaufort, M. Coda, M. Conti, T.M.J. Van Bakel, F.J.H. Nauta, E. Lanzarone, F.L. Moll, J.A. Van Herwaarden, F. Auricchio, S. Trimarchi. “Changes in aortic pulse wave velocity of four thoracic aortic stent grafts in an ex vivo porcine model”, *Plos One*, 12 (10): e0186080 (2017)

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62. F. Auricchio, G. Scalet, P. Wriggers. "Fiber-reinforced materials: finite elements for the treatment of the inextensibility constraint", *Computational Mechanics*, 60 (6): 905-922 (2017)
63. H.W.L. De Beaufort, M. Conti, A.V. Kamman, F.J.H. Nauta, E. Lanzarone, F.L. Moll, J.A. Van Herwaarden, F. Auricchio, S. Trimarchi. "Stent-Graft Deployment Increases Aortic Stiffness in an Ex Vivo Porcine Model", *Annals of Vascular Surgery*, 43: 302-308 (2017)
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