

# FERDINANDO AURICCHIO

## CURRICULUM VITAE

### Born:

**Email:** auricchio@unipv.it  
**Personal Web-page:** www.unipv.it/auricchio  
**Group Web-page:** www.unipv.it/compmech

### RESEARCH UNIQUE IDENTIFIER:

**ResearcherID:** B-9405-2009  
**Orcid:** <https://orcid.org/0000-0002-3735-2400>

### SCIENTIFIC PRODUCTION:

- **367 DOCUMENTS ON ISI, 401 DOCUMENTS ON SCOPUS**
- **H-Index: 51** according to **ISI**; **52** according to **Scopus**
- **Citations: 8710** according to **ISI**; **10342** according to **Scopus**
- **Citations excluding self-citations: 7957** according to **ISI**; **8461** according to **Scopus**
- **1 Highly Cited Paper** 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 370, Scopus 415**
- 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 283, Scopus 318**
- 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 204, Scopus 258**
- 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 203, Scopus 234**
- 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 185, Scopus 193**

### 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:**

- Since 2018 Member of the **Italian National Academy of Science** (known also as Accademia dei XL)
- 2019 **Eugenio Beltrami Prize** for Senior Engineering Scientist Prize, M&MOCS International Research Center on Mathematics and Mechanics of Complex Systems (Italy)
- 2018 **Theodore von Karman Fellowship** for incoming scientists, RWTH Aachen University (Germany)
- 2016 **Euler Medal** by ECCOMAS (European Community of Computational Methods in Applied Sciences)
- 2015 **San Siro Merit** by Municipality of Pavia
- 2012 **Fellow Award** by IACM (International Association for Computational Mechanics). Award description can be found at

### **PROFESSIONAL COMMITTEES AND ACTIVITIES (SELECTED):**

- Since 2021 Member of the Scientific-Technical Committee of the Bioengineering and Medical Informatics Consortium
- Since 2021 President of ECCOMAS (European Community of Computational Methods in Applied Sciences)
- Since 2020 Member of the international academic network within the Cluster of Excellence "Integrative Computational Design and Construction for Architecture (IntCDC)" at University of Stuttgart
- Since 2019 Inaugural member of the Technical Committee on Architected Materials within the Engineering Mechanics Institute (EMI) of ASCE
- 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"
- 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 Member of the **Advisory Committee on Technical Standards for Constructions** for CNR (National Italian Research Council)

Since 2011 Member of the European Society of Biomechanics

Since 2010 Reviewer for ESF (European Science Foundation)

2017-2021 Member of the Executive Council for SISCo (Italian Society of Structural Mechanics)

2020 Member of the ECCOMAS 2020 award committee

2019 **Member** of the **Serra Hünter selection international committee** for three positions as **Tenure-eligible 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

2013-2019 **Vice-President of ECCOMAS** (European Community of Computational Methods in Applied Sciences)

2015-2019 **Director** of the “**Computational Mechanics and Advanced Materials**” joint Center between University of Pavia and University of Napoli Federico II

2012-2018 **Department Chair** (Department of Civil Engineering and Architecture)

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:

2020-2022 “Digital Smart Fluidics (Fluidica Digitale per le Scienze della Vita)”, funded by Regione Lombardia, unit leader  
 2019-2022 “3D Printing: a bridge to the future (3DP\_Future). Computational methods, innovative applications, experimental validations of new materials and technologies”, funded by MIUR (Italian Department of University Research), project leader  
 2019-2021 “MATER: Myco-Advanced leather matERials”, funded by Regione Lombardia and Fondazione Cariplo, unit member  
 2017-2021 “ProTechTion: Industrial decision-making on complex Production Technologies supported by simulaTion-based engineering”, funded under the H2020 Program, unit leader

#### PAST RESEARCH GRANTS:

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  
 2017-2019 “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  
 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

#### **INDUSTRIAL SPONSORSHIP (SELECTED):**

- 2019-2021 Development of a platform 3D printing and milling of metal component of industrial interest (Companies: Fluid-o-tech; La Marzocco)
- Since 2019 HP Demo center, with a special focus on biomedical application
- Since 2020 Stratasys beta-tester, with a special focus on 3D printed material performances to reproduce realistic surgery

#### **CONSULTANCY WORK (SELECTED):**

- 2019 “Supporto allo sviluppo di un programma di calcolo per l'analisi non lineare di edifici”, Rebel Dynamics (Italy)
- 2018 “Esecuzione di un programma di ricerca finalizzato allo studio di supporti anatomici per la realizzazione di fantocci medicali con tecnologie di stampa 3D”, Graftonica Srl (Italy)
- 2018 “Realizzazione di un modello 3D patient-specific di esofago e relative varici esofagee”, Sidam Srl
- 2016 “Programma di ricerca finalizzato allo Studio anche tramite esecuzione di test su provini di materiali a base di filo ABS, delle proprietà di materiali polimerici quando trasformati con tecnologie di stampa 3DFDM a deposizione di filo fuso”, Versalis Spa (Italy)
- 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 “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 (Italy), Smarrita Camilla Design (Italy), NONESISTE Design Lab (Italy)
- 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** (with F. Brezzi, R.L. Taylor, M. Bischoff, A. Reali, G. Sangalli):
  - Pavia, May 25-29, 2020
  - 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
- **State of the art computational methods for nonlinear solid mechanics**, within the European Joint Doctorate Programmes SEED and ProTechTion and the European Training Network AdMoRe, Pavia 8-10 July 2019 (with J. Bonet, A.J. Gil, C.H. Lee, R. Ortigosa, Dr. R. Poya)
- **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** (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** (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** (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:

#### PATENTS

1. P.Canzi, M.Benazzo, S.Marconi, F.Auricchio (Inventors and Applicants), “Dispositivo di fissaggio dell’osso temporale per protesi acustiche impiantabili”, ITUB20152801A1
2. P.Canzi, M.Benazzo, S.Marconi, F.Auricchio (Inventors and Applicants), “Ring cochlear implant introducer”, EP2016068296W·2016-08-01
3. 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
4. U.Anselmi Tamburrini, F.Auricchio, S.Morganti (Inventors and Applicants), “Manufacture of ceramic objects”, PCT/EP2017/059932, WO 2018/196965
5. P.Canzi, S.Marconi, F.Auricchio, M.Benazzo (Inventors and Applicants), “Temporal Bone Holder”, Italian Patent n. 102015000041482, 2015
6. 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
7. 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):

- 2022 Invited/Plenary Lecture, 7th International Conference on Computational and Mathematical Biomedical Engineering (CMBE21). Milan (Italy), “to be defined”
- 2022 **Invited/Plenary Lecture**, Biomechanics: Challenges of the Next Decade, International Symposium in honor of Professor Gerhard A. Holzapfel’s 60th birthday, Graz (Austria), “to be defined”
- 2022 **Plenary Lecture**, 10<sup>th</sup> ICCSM, 10<sup>th</sup> International Congress of the Croatian Society of Mechanics, Pula (Croatia), “to be defined”
- 2020 **Plenary Lecture**, ICAST2020, 31<sup>st</sup> International Conference on Adaptive Structures and Technologies, Reggio Emilia (Italy), “to be defined”,
- 2022 **XXXX**, M&MoCS, Microstructures and Microarchitectures: Theoretical, Numerical and Experimental Aspects, Arpino (Italy), “to be defined”
- 2022 **Keynote Lecture**, mini-symposium on “Optimal Design of Mechanical Metamaterials and Bionic Structures, International Conference on Programmable Materials, Berlin (Germany), “Shape memory polymers: from constitutive modeling to 3D printing”
- 2021 **Plenary Lecture**, 14<sup>th</sup> World Congress on Computational Mechanics and 8<sup>th</sup> European Congress on Computational Methods in Applied Sciences and Engineering, Paris (France), “Additive manufacturing: opportunities and challenges”
- 2020 **Invited Lecture**, INdAM Workshop on "Mathematical Methods for Objects Reconstruction: from 3D Vision to 3D Printing", Rome (Italy), “Additive Manufacturing: from the concept to the component production. Modeling and computational challenges!!”
- 2019 **Invited Lecture**, XVIII Congresso Nazionale Società Italiana di Chirurgia Vascolare ed Endovascolare, Firenze (Italy), “La stampa 3d nel trattamento della patologie aortiche complesse”,
- 2019 **Plenary Lecture**, EMI-2019, Engineering Mechanics Institute International Conference, Lyon, Villeurbanne (France), “Additive Manufacturing: modeling and computational challenges!!”
- 2019 **Invited Lecture**, RAMSS-2019, Recent Advances in Mechanics of Solids and Structures, Trento (Italy), “Additive Manufacturing: modeling and computational challenges!!”
- 2019 **Invited lecture**, International Workshop on Recent advances in Phase-Field modeling: from Engineering to Biology, Pavia (Italy), “Additive Manufacturing Graded-material Design based on Phase-field and Topology Optimization”



- 2019 **Invited Lecture**, High Order Finite Elements and Isogeometric Methods (HOFEIM), Pavia (Italy), “Advanced numerical methods in additive manufacturing applications”
- 2019 **Invited Lecture**, 106° Congresso Nazionale Società Italiana di Otorinolaringologia e Chirurgia Cervico-Facciale (SIOeChCF), Rimini (Italy), “Highlights of 3D printing technology: applications in head and neck surgery”
- 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**, IMWS-AMP 2017, IEEE MTT-S International Microwave Workshop Series on Advanced Materials and Processes, 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**, 17<sup>th</sup> EFORT Congress, Geneva (Switzerland), “3D Printing: Clinical Applications In Orthopaedics And Traumatology”
- 2016 **Plenary Lecture**, MAFELAP 2016, 15<sup>th</sup> 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° 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 **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**, 86<sup>th</sup> 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"
- 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):**

- 2021 "3D printing: a world of opportunities", within the "Seminari Carlo Emanuele e Maria Rosa Tiscornia", Department of Civil, Chemical and Environmental Engineering (DICCA), University of Genova, Genova (Italy)
- 2021 "3D printing: overview of its clinical application in surgery", **Joint Challenge 2021**, Cernobbio (Italy)
- 2021 "Additive Manufacturing: technologies and applications, also for civil constructions", Dipartimento di Ingegneria, Università di Roma III (webinar)
- 2021 "Additive Manufacturing. A world full of opportunities and challenges!"; invited Colloquium at SSM - School for Advanced Studies of Napoli (webinar)

- 2021 “Additive Manufacturing. A world full of opportunities and challenges!!”, Institut de mécanique et d'ingénierie, Département de Ingénierie Mécanique et Conception, École Nationale Supérieure d'Arts et Métiers, France (webinar)
- 2021 “Simulation for additive manufacturing: opportunities and challenges”, 1st Winter School on “Trends on Additive Manufacturing for Engineering Applications”, Polytechnical University of Timișoara (UPT) Timisoara, Romania (webinar)
- 2020 “Industria 4.0 per la ripartenza - Focus Additive Manufacturing”, Assolombarda (webinar)
- 2020 “La stampa 3D: tecnologia abilitante oggi, tecnologia produttiva domani. Dalla progettazione alla produzione” within the Master ANIE per Industria 4.0 (webinar)
- 2020 “Additive Manufacturing: modeling and computational challenges!”, Department of Mathematica, University of Napoli “Federico II”, Napoli (Italy)
- 2019 “Simulazione e ottimizzazione dei componenti ottenuti con tecnologia additiva”, workshop on *Additive Manufacturing nel settore aerospaziale*, organized by Lombardia Aerospace Cluster, Pavia (Italy)
- 2019 “Additive Manufacturing: modeling and structural optimization procedures!!”, Dipartimento di Ingegneria Civile, Ambientale e Meccanica, Università di Trento, Trento (Italy)
- 2019 “Applicazioni delle tecnologie additive nel settore biomedicale” AITA, Cinisello Balsamo (Italy)
- 2018 “Shape Memory Alloys. Part 1: An introduction to shape memory alloys: material response, applications, and simple constitutive modeling”, ILT Fraunhofer, Aachen (Germany)
- 2018 “Shape memory alloys. Part 2: 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 “3D Printing: some experimental and computational investigations”, EU Regional School 2017 in Computational Engineering Science, AICES Institute, RWTH Aachen, Germany,
- 2015 “Mechanics of Solids: from beam theory to rapid prototyping for surgery planning”, Università di Napoli Federico II, Napoli (Italy),
- 2014 “Shape-Memory Alloys: 3D Constitutive Modeling and Biomedical Device Investigation”, Laboratoire de Mécanique des Solides, Ecole Polytechnique, Paris (France),

#### **ORGANIZATION OF INTERNATIONAL & NATIONAL CONFERENCES:**

- 2021 SIM-AM, International Conference on Simulation for Additive Manufacturing, ECCOMAS Thematic Conference, Glasgow (Great Britain)
- 2019 SIM-AM, International Conference on Simulation for Additive Manufacturing, ECCOMAS Thematic Conference, Pavia (Italy)
- 2018 IDBN Second Conference of the Italian Digital Biomanufacturing Network, Pavia (Italy)
- 2017 IDBN Second Conference of the Italian Digital Biomanufacturing Network, Bologna (Italy)
- 2017 SIM-AM, International Conference on Simulation for Additive Manufacturing, ECCOMAS Thematic Conference, Munich (Germany)
- 2017 IGA, International Conference on Isogeometric Analysis, ECCOMAS Thematic Conference, Pavia (Italy)
- 2015 PLAST, Conference on Stampa 3D nel medicale: tecnologie, applicazioni ed aspetti regolatori, Milano (Italy)
- 2015 3D-PRINTHUB, 1<sup>st</sup> 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, 8<sup>th</sup> World Congress on Computational Mechanics and 5<sup>th</sup> 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, 5<sup>th</sup> 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, 23<sup>rd</sup> 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):**

- 2022 ICoNSoM, 2<sup>nd</sup> International Conference on Nonlinear Solid Mechanics, Alghero, Italy
- 2021 AMMM, International Conference on “Additive Manufacturing Meets Medicine”, Lübeck, Germany
- 2021 ICCSM, 10<sup>th</sup> International Congress of the Croatian Society of Mechanics, Pula, Croatia
- 2021 CMBE, 7<sup>th</sup> International Conference on Computational and Mathematical Biomedical Engineering, Milano (Italy)
- 2020 SIRAMM, School on Structural Integrity and Reliability of Advanced Materials obtained through Additive Manufacturing, Timisoara (Romania)
- 2020 AMMM, International Conference on “Additive Manufacturing Meets Medicine”, Lübeck, Germany
- 2020 WCCM-ECCOMAS, 14th World Congress in Computational Mechanics and ECCOMAS Congress, Paris (France)
- 2019 ICBT, International Conference on Biomedical Technology, Hannover (Germany)
- 2019 AMMM, International Conference on “Additive Manufacturing Meets Medicine”, Lübeck, Germany
- 2019 IUTAM Symposium on “Phase Transformation in Shape Memory Materials: Modeling and Applications” Austin (USA)
- 2019 FEF, 20<sup>th</sup> International Conference on Finite Elements in Flow Problems, member of the Additive Manufacturing sub-Committee, Chicago (USA).
- 2019 CMBE, 6<sup>th</sup> International Conference on Computational and Mathematical Biomedical Engineering, Sendai City (Japan)
- 2019 COMPLAS, 15<sup>th</sup> International Conference on Computational Plasticity, Barcelona (Spain)
- 2019 COUPLED, 8<sup>th</sup> International Conference on Computational Methods for Coupled Problems in Science and Engineering, Sitges (Spain)
- 2018 WCCM, 13th World Congress on Computational Mechanics, New York City (USA)
- 2018 XX Congresso IORS-Italian Orthopedic Research Society, La medicina di precisione e l’Ortopedia, Pavia (Italy)
- 2018 ICOMP, 3<sup>rd</sup> International Conference on Computational Methods in Manufacturing Processes, Barcelona (Spain)
- 2018 ECCM 6 & ECFD 7, 6<sup>th</sup> European Conference on Computational Mechanics (Solids, Structures and Coupled Problems) and 7<sup>th</sup> 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, 5<sup>th</sup> International Conference on Computational and Mathematical Biomedical Engineering, University of Pittsburgh, Pennsylvania (USA)
- 2017 SMART, 8<sup>th</sup> ECCOMAS Thematic Conference on Smart Structures and Materials, Madrid (Spain)
- 2016 10th International Conference on Mechanics of Time Dependent Materials, Paris (France)
- 2016 CIMTEC, 5<sup>th</sup> 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, 4<sup>th</sup> Munich Aortic and Carotid Conference, Munich (Germany)
- 2013 SEECCM III, III South-East European Conference<sup>[1]</sup> on Computational Mechanics, Kos (Greece)
- 2013 SMST, European SMST (Shape Memory and Superelastic Technologies) Conference, Prague (Czech Republic)
- 2012 WCCM, 10<sup>th</sup> World Congress on Computational Mechanics, Sao Paulo (Brazil)
- 2012 CIMTEC, 4<sup>th</sup> 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, 5<sup>th</sup> 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:**

- Member of the Selection Committee for JC Simo award for young investigators within the Spanish Association for Numerical Methods in Engineering (2020)
- Faculty member at the event “XVIII Congresso Nazionale Società Italiana di Chirurgia Vascolare ed Endovascolare” Firenze, October 2019
- 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 6<sup>th</sup> 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. Viguerie, G. Lorenzo, F. Auricchio, D. Baroli, T.J.R. Hughes, A. Patton, A. Reali, T.E. Yankeelov, A. Veneziani. "Simulating the spread of COVID-19 via a spatially-resolved susceptible–exposed–infected–recovered–deceased (SEIRD) model with heterogeneous diffusion", *Applied Mathematics Letters*, 111: 106617 (2021)
2. A. Finotello, R.M. Romarowski, R. Gorla, G. Bianchi, F. Bedogni, F. Auricchio, S. Morganti. "Performance of high conformability vs. high radial force devices in the virtual treatment of TAVI patients with Bicuspid Aortic Valve", *Medical Engineering & Physics*, 89: 42-50 (2021)
3. E. López-Oliver, C. Tomassoni, L. Silvestri, M. Bozzi, L. Perregrini, S. Marconi, G. Alaimo, F. Auricchio. "3-D-Printed Compact Bandpass Filters Based on Conical Posts", *IEEE Transactions on Microwave Theory and Techniques*, 69 (1): 616-628 (2021)
4. R. Gorla, M. Casenghi, A. Finotello, F. De Marco, S. Morganti, D. Regazzoli, G. Bianchi, E. Acerbi, A. Popolo Rubbio, N. Brambilla, L. Testa, F. Castriota, F. Auricchio, B. Reimbers, F. Bedogni. "Outcome of transcatheter aortic valve replacement in bicuspid aortic valve stenosis with new-generation devices", *Interactive Cardiovascular and Thoracic Surgery*, 32 (1): 20-28 (2021)
5. E. Lanzarone, A. Finotello, B. Pane, G. Pratesi, D. Palombo, M. Conti, G. Spinella. "Prediction Model of Isolated Iliac and Abdominal Aneurysms", *European Journal of Clinical Investigation*, e13517 (2021)
6. A. Finotello, G. Spinella, G. Notini, D. Palombo, G. Pratesi, S. Mambrini, F. Auricchio, M. Conti, B. Pane. "Geometric Analysis to Determine Kinking and Shortening of Bridging Stents After Branched Endovascular Aortic Repair", *CardioVascular and Interventional Radiology* (2021)
7. G.M. Rocco, N. Delmonte, D. Schreurs, S. Marconi, F. Auricchio, M. Bozzi. "3D-printed pumpkin-shaped cavity resonator to determine the complex permittivity of liquids", *Microwave and Optical Technology Letters*, 63 (4): 1061-1066 (2021)
8. D. Allegrini, G. Montesano, S. Marconi, N. Rosso, G. Ometto, R. Raimondi, F. Auricchio, P. Tsoutsanis, F. Semeraro, M. Cacciatori, D.P. Crabb, M.R. Romano. "A novel quantitative analysis method for idiopathic epiretinal membrane", *PLoS ONE*, 16 (3), e0247192 (2021)
9. M. Carraturo, S. Kollmannsberger, A. Reali, F. Auricchio, E. Rank. "An immersed boundary approach for residual stress evaluation in selective laser melting processes", *Additive Manufacturing*, 46: 102077 (2021)
10. A. Castrogiovanni, S. Marfia, F. Auricchio, E. Sacco. "TFA and HS based homogenization techniques for nonlinear composites", *International Journal of Solids and Structures*, 225: 111050 (2021)
11. M. Murer, V. Furlan, G. Formica, S. Morganti, B. Previtali, F. Auricchio. "Numerical simulation of particles flow in Laser Metal Deposition technology comparing Eulerian-Eulerian and Lagrangian-Eulerian approaches", *Journal of Manufacturing Processes*, 68 (A): 186-197 (2021)
12. N. Korshunova, G. Alaimo, S.B. Hosseini, M. Carraturo, A. Reali, J. Niiranen, F. Auricchio, E. Rank, S. Kollmannsberger. "Bending behavior of octet-truss lattice structures: Modelling options, numerical characterization and experimental validation", *Materials and Design*, 205: 109693 (2021)
13. N. Korshunova, G. Alaimo, S.B. Hosseini, M. Carraturo, A. Reali, J. Niiranen, F. Auricchio, E. Rank, S. Kollmannsberger. "Image-based numerical characterization and experimental validation of tensile behavior of octet-truss lattice structures", *Additive Manufacturing*, 41: 101949 (2021)
14. A. Vigliotti, F. Auricchio. "Automatic Differentiation for Solid Mechanics", *Archives of Computational Methods in Engineering*, 28: 875-895 (2021)

15. F. Nappi, L. Mazzocchi, C. Spadaccio, D. Attias, I. Timofeva, L. Macron, A. Iervolino, S. Morganti, F. Auricchio. "Corevalve vs. Sapien 3 transcatheter aortic valve replacement: A finite element analysis study", *Bioengineering*, 8(5): 52 (2021)
16. A. Ferrarini, A. Finotello, G. Salsano, F. Auricchio, D. Palombo, G. Spinella, B. Pane, M. Conti. "Impact of leg bending in the patient-specific computational fluid dynamics of popliteal stenting", *Acta Mechanica Sinica/Lixue Xuebao*, 37: 279-291 (2021)
17. M. Domanin, D. Bissacco, R.M. Romarowsky, M. Conti, F. Auricchio, M. Ferraresi, S. Trimarchi. "Drag Forces after Thoracic Endovascular Aortic Repair. General Review of the Literature", *Annals of Vascular Surgery* (2021), doi: 10.1016/j.avsg.2021.02.042
18. M. Carraturo, G. Alaimo, S. Marconi, E. Negrello, E. Sgambitterra, C. Maletta, A. Reali, F. Auricchio. "Experimental and Numerical Evaluation of Mechanical Properties of 3D-Printed Stainless Steel 316L Lattice Structures", *Journal of Materials Engineering and Performance* (2021), doi: 10.1007/s11665-021-05737-w
19. E. Bari, F. Scocozza, S. Perteghella, M. Sorlini, F. Auricchio, M.L. Torre, M. Conti. "3d bioprinted scaffolds containing mesenchymal stem/stromal lyosecretome: Next generation controlled release device for bone regenerative medicine", *Pharmaceutics*, 13(4): 515 (2021)
20. A. Viguerie, F. Auricchio. "Numerical solution of additive manufacturing problems using a two-level method", *International Journal for Numerical Methods in Engineering* (2021), doi: 10.1002/nme.6657
21. R. Gorla, F. De Marco, S. Morganti, A. Finotello, N. Brambilla, L. Testa, M.L. Agnifili, M. Tusa, F. Auricchio, F. Bedogni. "Transcatheter aortic valve implantation with Portico and Evolut-R in patients with elliptic aortic annulus", *EuroIntervention*, 15 (18): e1588-e1591 (2020)
22. V. Mercuri, G. Balduzzi, D. Asprone, F. Auricchio. "Structural analysis of non-prismatic beams: Critical issues, accurate stress recovery, and analytical definition of the Finite Element (FE) stiffness matrix", *Engineering Structures*, 2013: 110252 (2020)
23. L. Casagrande, L. Esposito, C. Menna, D. Asprone, F. Auricchio. "Effect of testing procedures on buildability properties of 3D-printable concrete", *Construction and Building Materials*, 245: 118286 (2020)
24. A. Viguerie, S. Bertoluzza, F. Auricchio. "A Fat boundary-type method for localized nonhomogeneous material problems", *Computer Methods in Applied Mechanics and Engineering*, 364: 112983 (2020)
25. E.S. Keneth, G. Scalet, M. Layani, G. Tibi, A. Degani, F. Auricchio, S. Magdassi. "Pre-Programmed Tri-Layer Electro-Thermal Actuators Composed of Shape Memory Polymer and Carbon Nanotubes", *Soft Robotics*, 7 (2): 123-129 (2020)
26. V.M. Belvroy, R.M. Romarowski, T.M.J. van Bakel, J.A. van Herwaarden, J. Bismuth, F. Auricchio, F.L. Moll, S. Trimarchi. "Impact of Aortic Tortuosity on Displacement Forces in Descending Thoracic Aortic Aneurysms", *European Journal of Vascular and Endovascular Surgery*, 59 (4): 557-564 (2020)
27. A. Finotello, E. Faggiano, M. Conti, G. Spinella, B. Pane, D. Palombo, F. Auricchio. "Medical image analysis to measure the follow-up geometry of thoraco-abdominal aortic aneurysms treated with multilayer flow modulator stent", *Computer Methods in Biomechanics and Biomedical Engineering: Imaging and Visualization*, 8 (2): 126-133 (2020)
28. P. Totaro, S. Marconi, S. Morganti, A.G. Corsico, S. Pelenghi, F. Auricchio. "Multidisciplinary preoperative simulations to optimize surgical outcomes in a challenging case of the complete double aortic arch in the adult", *Journal of Cardiac Surgery*, 35 (3): 716-720 (2020)
29. P. Canzi, P. Capaccio, S. Marconi, G. Conte, L. Preda, I. Avato, F. Aprile, M. Gaffuri, A. Occhini, L. Pignataro, F. Auricchio, M. Benazzo. "Feasibility of 3D printed salivary duct models for sialendoscopic skills training: preliminary report", *European Archives of Oto-Rhino-Laryngology*, 277 (3): 909-915 (2020)
30. E.S. Keneth, R. Lieberman, M. Rednor, G. Scalet, F. Auricchio, S. Magdassi. "Multi-material

- 3D printed shape memory polymer with tunable melting and glass transition temperature activated by heat or light”, *Polymers*, 12 (3): 710 (2020)
31. G.M. Rocco, M. Bozzi, D. Schreurs, L. Perregrini, S. Marconi, G. Alaimo, F. Auricchio. “3-D Printed Microfluidic Sensor in SIW Technology for Liquids' Characterization”, *IEEE Transactions on Microwave Theory and Techniques*, 68 (3): 8935528, 1175-1184 (2020)
  32. N. Inverardi, S. Pandini, F. Bignotti, G. Scalet, S. Marconi, F. Auricchio. “Sequential Motion of 4D Printed Photopolymers with Broad Glass Transition”, *Macromolecular Materials and Engineering*, 305 (1): 1900370 (2020)
  33. S. Pandini, N. Inverardi, G. Scalet, D. Battini, F. Bignotti, S. Marconi, F. Auricchio. “Shape memory response and hierarchical motion capabilities of 4D printed auxetic structures”, *Mechanics Research Communications*, 103: 103463 (2020)
  34. A. Pietrabissa, S. Marconi, E. Negrello, V. Mauri, A. Peri, L. Pugliese, E.M. Marone, F. Auricchio. “An overview on 3D printing for abdominal surgery”, *Surgical Endoscopy*, 34 (1) (2020)
  35. G. Spinella, A. Finotello, F.R. Pisa, M. Conti, S. Mambriani, G. Pratesi, F. Auricchio, D. Palombo, B. Pane. “Geometrical Evaluation of Aortic Sac Remodeling During Two-Step Thoracoabdominal Aortic Aneurysm Endovascular Repair”, *Annals of Vascular Surgery*, 67: 43-51 (2020)
  36. S. Pisani, R. Dorati, F. Scocozza, C. Mariotti, E. Chiesa, G. Bruni, I. Genta, F. Auricchio, M. Conti, B. Conti. “Preliminary investigation on a new natural based poly( $\gamma$ -glutamic acid)/Chitosan bioink”, *Journal of Biomedical Materials Research - Part B Applied Biomaterials*, 108 (7): 2718-2732 (2020)
  37. F. Nappi, L. Mazzocchi, I. Timofeva, L. MacRon, S. Morganti, S.S.A. Singh, D. Attias, A. Congedo, F. Auricchio. “A finite element analysis study from 3D CT to predict transcatheter heart valve thrombosis”, *Diagnostics*, 10 (4): 183 (2020)
  38. P. Canzi, I. Avato, S. Marconi, M. Del Maestro, A.G. Lucifero, M. Magnetto, E. Carlotto, F. Auricchio, S. Luzzi, M. Benazzo. “A 3D printed custom-made mask model for frameless neuronavigation during retrosigmoid craniotomy. A preclinical cadaveric feasibility study”, *Annali italiani di chirurgia*, 9 (2020)
  39. E.M. Marone, L.F. Rinaldi, M. Conti, S. Marconi, F. Auricchio, A. Pietrabissa, G. Basile. “Three-Dimensional Printed Models Can Help Settle Malpractice Litigation Over Surgical Interventions”, *Annals of Vascular Surgery*, 65: e292-e294 (2020)
  40. S.C. Divi, C.V. Verhoosel, F. Auricchio, A. Reali, E.H. van Brummelen. “Error-estimate-based adaptive integration for immersed isogeometric analysis”, *Computers and Mathematics with Applications*, 80 (11): 2481-2516 (2020)
  41. F. Auricchio, E. Bonetti, M. Carraturo, D. Hömberg, A. Reali, E. Rocca. “A phase-field based graded-material topology optimization with stress constraint”, *Mathematical Models and Methods in Applied Sciences*, 30 (8): 1461-1483 (2020)
  42. A. Viguerie, A. Veneziani, G. Lorenzo, D. Baroli, N. Aretz-Nellesen, A. Patton, T.E. Yankeelov, A. Reali, T.J.R. Hughes, F. Auricchio. “Diffusion-reaction compartmental models formulated in a continuum mechanics framework: application to COVID-19, mathematical analysis, and numerical study”, *Computational Mechanics*, 66: 1131-1152 (2020)
  43. C. Spadaccio, L. Mazzocchi, I. Timofeva, L. Macron, C.N. De Cecco, S. Morganti, F. Auricchio, F. Nappi. “Bioengineering case study to evaluate complications of adverse anatomy of aortic root in transcatheter aortic valve replacement: Combining biomechanical modelling with CT imaging”, *Bioengineering*, 7 (4): 1-10 (2020)
  44. M. Carraturo, J. Jomo, S. Kollmansberger, A. Reali, F. Auricchio, E. Rank. “Modeling and experimental validation of an immersed thermo-mechanical part-scale analysis for laser powder bed fusion processes”, *Additive Manufacturing*, 36: 101498 (2020)
  45. M. Conti, A. Ferrarini, A. Finotello, G. Salsano, F. Auricchio, D. Palombo, G. Spinella, B. Pane. “Patient-specific computational fluid dynamics of femoro-popliteal stent-graft



- thrombosis”, *Medical Engineering and Physics*, 86: 57-64 (2020)
46. H. Garcia-Martinez, E. Avila-Navarro, G. Torregrosa-Penalva, N. Delmonte, L. Silvestri, S. Marconi, G. Alaimo, F. Auricchio, M. Bozzi. “Design and fabrication of a band-pass filter with ebg single-ridge waveguide using additive manufacturing techniques”, *IEEE Transactions on Microwave Theory and Techniques*, 68 (10): 4361-4368 (2020)
  47. A. Fantazzini, M. Esposito, A. Finotello, F. Auricchio, B. Pane, C. Basso, G. Spinella, M. Conti. “3D Automatic Segmentation of Aortic Computed Tomography Angiography Combining Multi-View 2D Convolutional Neural Networks”, *Cardiovascular Engineering and Technology*, 11 (5): 576-586 (2020)
  48. M. Lo Rito, R.M. Romarowski, A. Rosato, S. Pica, F. Secchi, A. Giamberti, F. Auricchio, A. Frigiola, M. Conti. “Anomalous aortic origin of coronary artery biomechanical modeling: Toward clinical application”, *Journal of Thoracic and Cardiovascular Surgery*, 161 (1): 191-201.e1 (2020)
  49. F. De Grazia, S. Marconi, M. Bardone, A. Mauro, G. Alaimo, F. Auricchio, A. Pietrabissa, A. Di Sabatino. "Use of 3D printer for face mask production to protect endoscopy unit personnel in contact with high-risk patients during COVID-19 pandemic", *Endoscopy*, 52 (12): 1146-1147 (2020)
  50. M. Carraturo, B. Lane, H. Yeung, S. Kollmannsberger, A. Reali, F. Auricchio. “Numerical Evaluation of Advanced Laser Control Strategies Influence on Residual Stresses for Laser Powder Bed Fusion Systems”, *Integrating Materials and Manufacturing Innovation*, 9: 435-445 (2020)
  51. 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)
  52. 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*, 5: 100232 (2019)
  53. 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)
  54. 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)
  55. 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)
  56. 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)
  57. 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)
  58. 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)
  59. 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)

60. 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)
61. 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*, 8 (1): 167-177 (2019)
62. G. Alaimo, F. Auricchio, S. Marfia, E. Sacco. "Optimization clustering technique for PieceWise Uniform Transformation Field Analysis homogenization of viscoplastic composites", *Computational Mechanics*, 64 (6): 1495-1516 (2019)
63. 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*, 3: 100025 (2019)
64. G. Spinella, A. Finotello, B. Pane, G. Salsano, S. Mambriani, 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*, 26 (4): 496-504 (2019)
65. 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*, 136: 103085 (2019)
66. M. Corti, E. Calleri, S. Perteghella, A. Ferrara, R. Tamma, C. Milanese, D. Mandracchia, G. Brusotti, M.L. Torre, D. Ribatti, F. Auricchio, G. Massolini, G. Tripodo. "Polyacrylate/polyacrylate-PEG biomaterials obtained by high internal phase emulsions (HIPEs) with tailorable drug release and effective mechanical and biological properties", *Materials Science & Engineering*, 105: 110060 (2019)
67. A. Hajikhani, F. Scocozza, M. Conti, M. Marino, F. Auricchio, P. Wriggers. "Experimental characterization and computational modeling of hydrogel cross-linking for bioprinting applications", *The international Journal of Artificial Organs*, 42 (10): 548-557 (2019)
68. T. Pastore, V. Mercuri, C. Menna, D. Asprone, P. Festa, F. Auricchio. "Topology optimization of stress-constrained structural elements using risk-factor approach", *Computers & Structures*, 224: 106104 (2019)
69. G. Balduzzi, S. Morganti, J. Füssl, M. Aminbaghai, A. Reali, F. Auricchio. "Modeling the non-trivial behavior of anisotropic beams: A simple Timoshenko beam with enhanced stress recovery and constitutive relations", *Composite Structures*, 229: 111265 (2019)
70. 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*, 179: 806-819 (2019)
71. A. Melocchi, M. Uboldi, N. Inverardi, F. Briatico-Vangosa, F. Baldi, S. Pandini, G. Scalet, F. Auricchio, M. Cerea, A. Foppoli, A. Maroni, L. Zema, A. Gazzaniga. "Expandable drug delivery system for gastric retention based on shape memory polymers: Development via 4D printing and extrusion", *International Journal of Pharmaceutics*, 571: 118700 (2019)
72. D. Spinelli, S. Marconi, R. Caruso, M. Conti, F. Benedetto, H.W. De Beaufort, F. Auricchio, S. Trimarchi. "3D printing of aortic models as a teaching tool for improving understanding of aortic disease", *The Journal of Cardiovascular Surgery*, 60 (5): 582-588 (2019)
73. L. Casagrande, E. Villa, A. Nespoli, A. Occhiuzzi, A. Bonati, F. Auricchio. "Innovative dampers as floor isolation systems for seismically-retrofit multi-storey critical facilities", *Engineering Structures*, 201: 109772 (2019)
74. M. Carraturo, E. Rocca, E. Bonetti, D. Hömberg, A. Reali, F. Auricchio. "Graded-material design based on phase-field and topology optimization", *Computational Mechanics*, 64 (6):

1589-1600 (2019)

75. 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*, 13 (6): 336-339 (2019)
76. F. Auricchio, A. Bacigalupo, L. Gambarotta, M. Lepidi, S. Morganti, F. Vadalà. “A novel layered topology of auxetic materials based on the tetrachiral honeycomb microstructure”, *Materials and Design*, 179: 107883 (2019)
77. S. Marconi, E. Negrello, V. Mauri, L. Pugliese, A. Peri, F. Argenti, F. Auricchio, A. Pietrabissa. “Toward the improvement of 3D-printed vessels' anatomical models for robotic surgery training”, *International Journal of Artificial Organs*, 42 (10): 558-565 (2019)
78. V. Fantini, M. Bordoni, F. Scocozza, M. Conti, E. Scarian, S. Carelli, A.M.Di Giulio, S. Marconi, O. Pansarasa, F. Auricchio, C. Cereda. “Bioink Composition and Printing Parameters for 3D Modeling Neural Tissue”, *Cells*, 8 (8): 830 (2019)
79. F. Auricchio, M. Conti, R.M. Romarowski. “Usefulness of computational fluid dynamics in penetrating aortic ulcer”, *Annals of Cardiothoracic Surgery*, 8 (4): 492-493 (2019)
80. P. Fedeli, A. Frangi, F. Auricchio, A. Reali. “Phase-field modeling for polarization evolution in ferroelectric materials via an isogeometric collocation method”, *Computer Methods in Applied Mechanics and Engineering*, 351: 789-807 (2019)
81. 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*, 55 (6): 1045-1053 (2019)
82. 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 identifies hostile zones for endograft deployment: A confirmatory biomechanical study in patients treated by thoracic endovascular aortic repair”, *European Journal of Cardio-thoracic Surgery*, 55 (5): 990-997 (2019)
83. S. Kollmannsberger, E. Rank, F. Auricchio, P. Steinmann. “Simulation for additive manufacturing”, *Computers and Mathematics with Applications*, 78 (7): 2167 (2019)
84. A. Cattenone, S. Morganti, F. Auricchio. “Basis of the Lattice Boltzmann Method for Additive Manufacturing”, *Archives of Computational Methods in Engineering*, 27 (4): 1109-1133 (2019)
85. 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)
86. 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)
87. 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)
88. 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)
89. 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)
90. 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)

91. 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)
92. 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)
93. 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)
94. 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)
95. A. Montanino, D. Asprone, A. Reali, F. Auricchio. "Modified Finite Particle Methods for Stokes problems", *Computational Particle Mechanics*, 5 (2): 141-160 (2018)
96. 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)
97. 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)
98. 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)
99. 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)
100. 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)
101. 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)
102. 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)
103. 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)
104. S. Marconi, E. Lanzarone, G.H.W. van Bogerijen, 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)
105. 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)
106. 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)
107. 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)
108. 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)
  109. 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)
  110. 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)
  111. 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)
  112. 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)
  113. 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)
  114. 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)
  115. 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)
  116. 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)
  117. P. Canzi, M. Magnetto, S. Marconi, P. Morbini, S. Mauramati, F. Aprile, I. Avato, F. Auricchio, M. Benazzo. "New frontiers and emerging applications of 3D printing in ENT surgery: A systematic review of the literature", *Acta Otorhinolaryngologica Italica*, 38 (4), 286-303 (2018)
  118. G. Scalet, F. Auricchio. "Erratum to: Computational Methods for Elastoplasticity: An Overview of Conventional and Less-Conventional Approaches", *Archives of Computational Methods in Engineering*, *Archives of Computational Methods in Engineering*, 25 (3), 845 (2018)
  119. 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)
  120. F. Auricchio, M. Fedele, M. Ferretti, A.G. Lefieux, R.M. Romarowski, L. Santangelo, A. Veneziani. "Benchmarking a hemodynamics application on Intel based HPC systems", *Advances in Parallel Computing*, 32: 57-66 (2018)
  121. 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)
  122. 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)
123. 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)
  124. 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)
  125. 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)
  126. E. Massoni, L. Silvestri, G. Alaimo, S. Marconi, M. Bozzi, L. Perregri, F. Auricchio. “3D-Printed Substrate Integrated Slab Waveguide for Single-Mode Bandwidth Enhancement”, *IEEE Microwave and Wireless Components Letters*, 27 (6): 536-538 (2017)
  127. 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)
  128. 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*, 13 (5): e0197453 (2017)
  129. G. Alaimo, F. Auricchio, M. Conti, M. Zingales. “Multi-objective optimization of nitinol stent design”, *Medical Engineering & Physics*, 47: 13-24 (2017)
  130. 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)
  131. 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)
  132. H.W.L. de Beaufort, F.J.H. Nauta, M. Conti, E. Cellitti, C. Trentin, E. Faggiano, G.H.W. van Bogerijen, C.A. Figueroa, F.L. Moll, J.A. van Herwaarden, F. Auricchio, S. Trimarchi. “Extensibility and Distensibility of the Thoracic Aorta in Patients with Aneurysm”, *European Journal of Vascular and Endovascular Surgery*, 53 (2): 199-205 (2017)
  133. G. Alaimo, S. Marconi, L. Costato, F. Auricchio. “Influence of meso-structure and chemical composition on FDM 3D-printed parts”, *Composites Part B: Engineering*, 113: 371-380 (2017)
  134. S. Marconi, L. Pugliese, M. Botti, A. Peri, E. Cavazzi, F. Auricchio, A. Pietrabissa. “Value of 3D-printing for the comprehension of surgical anatomy”, *Surgical Endoscopy*, 31 (10): 4102-4110 (2017)
  135. G. Scalet, F. Auricchio, M. Conti. “Computational analysis of advanced shape-memory alloy devices through a robust modeling framework”, *Shape Memory and Superelasticity*, 3 (2): 109-123 (2017)
  136. M. Conti, M. Marconi, G. Campanile, A. Reali, D. Adami, R. Berchiolli, F. Auricchio. “Patient-specific finite element analysis of popliteal stenting”, *Meccanica*, 52 (3): 633-644 (2017)
  137. T. Hoang, C.V. Verhoosel, F. Auricchio, E.H. van Brummelen, A. Reali. “Mixed Isogeometric Finite Cell Methods for the Stokes Problem”, *Computer Methods in Applied Mechanics and Engineering*, 316: 400-423 (2017)
  138. F. Auricchio, A. Ferrara, E. Lanzarone, S. Morganti, P. Totaro. “A regression method based on non-invasive clinical data to predict the mechanical behavior of ascending aorta aneurysmal tissue”, *IEEE Transactions on Biomedical Engineering*, 64 (11), 2607-2617 (2017)
  139. C.A. Di Buduo, P.M. Soprano, L. Tozzi, S. Marconi, F. Auricchio, D.L. Kaplan, A. Balduini. “Modular flow chamber for engineering bone marrow architecture and function”, *Biomaterials*,

- 146: 60-71 (2017)
140. J. Schroeder, N. Viebahn, P. Wriggers, F. Auricchio, K. Steeger. "On the stability analysis of hyperelastic boundary value problems using three- and two-field mixed finite element formulations", *Computational Mechanics*, 60 (3): 479-792 (2017)
  141. A. Finotello, S. Morganti, F. Auricchio. "Finite element analysis of TAVI: Impact of native aortic root computational modeling strategies on simulation outcomes", *Medical Engineering & Physics*, 47: 2-12 (2017)
  142. F.J.H. Nauta, G.H.W. van Bogerjen, C. Trentin, M. Conti, F. Auricchio, F.L. Moll, J.A. van Herwaarden, S. Trimarchi. "Impact of Thoracic Endovascular Aortic Repair on Pulsatile Circumferential and Longitudinal Strain in Patients With Aneurysm", *Journal of Endovascular Therapy*, 24 (2): 281-289 (2017)
  143. F. Auricchio, A. Greco, G. Alaimo, V. Giacometti, S. Marconi, V. Mauri. "3D Printing technology for buildings' accessibility: the tactile map for the MTE Museum in Pavia", *Journal of Civil Engineering and Architecture*, 11 (8): 736-747 (2017)
  144. A. Ferrara, S. Morganti, P. Totaro, A. Mazzola, F. Auricchio. "Human dilated ascending aorta: Mechanical characterization via uniaxial tensile tests", *Journal of The Mechanical Behavior of Biomedical Materials*, 53: 257-271 (2016)
  145. A. Pietrabissa, S. Marconi, A. Peri, L. Pugliese, E. Cavazzi, A. Vinci, M. Botti, F. Auricchio. "From CT scanning to 3-D printing technology for the preoperative planning in laparoscopic splenectomy", *Surgical Endoscopy and Other Interventional Techniques*, 30 (1): 366-371 (2016)
  146. A. Amendola, C.J. Smith, R. Goodall, F. Auricchio, L. Feo, G. Benzoni, F. Fraternali. "Experimental response of additively manufactured metallic pentamode materials confined between stiffening plates", *Composite Structures*, 142: 254-262 (2016)
  147. V. Sepe, F. Auricchio, S. Marfia, E. Sacco. "Homogenization techniques for the analysis of porous SMA", *Computational Mechanics*, 57 (5): 755-772 (2016)
  148. F. Auricchio, L.B. da Veiga, J. Kiendl, C. Lovadina, A. Reali. "Isogeometric collocation mixed methods for rods", *Discrete and Continuous Dynamical Systems-Series S*, 9 (1): 33-42 (2016)
  149. F. Auricchio, A. Constantinescu, M. Conti, G. Scalet. "Fatigue of Metallic Stents: From Clinical Evidence to Computational Analysis", *Annals of Biomedical Engineering*, 44 (2): 287-301 (2016)
  150. F. Auricchio, E. Boatti, A. Reali, U. Stefanelli. "Gradient structures for the thermomechanics of shape-memory materials", *Computer Methods In Applied Mechanics and Engineering*, 299: 440-469 (2016)
  151. G. Scalet, F. Auricchio, D.J. Hartl. "Efficiency and effectiveness of implicit and explicit approaches for the analysis of shape-memory alloy bodies", *Journal of Intelligent Material Systems and Structures*, 27 (3): 384-402 (2016)
  152. E. Achilli, A. Minguzzi, A. Visibile, C. Locatelli, A. Vertova, A. Naldoni, S. Rondinini, F. Auricchio, S. Marconi, M. Fracchia, P. Ghigna. "3D-printed photo-spectroelectrochemical devices for in situ and in operando X-ray absorption spectroscopy investigation", *Journal of Synchrotron Radiation*, 23: 622-628 (2016)
  153. F. Auricchio, A. Constantinescu, C. Menna, G. Scalet. "A shakedown analysis of high cycle fatigue of shape memory alloys", *International Journal of Fatigue*, 87: 112-123 (2016)
  154. R. Guerchais, G. Scalet, A. Constantinescu, F. Auricchio. "Micromechanical modeling for the probabilistic failure prediction of stents in high-cycle fatigue", *International Journal of Fatigue*, 87: 405-417 (2016)
  155. D. Gallo, A. Lefieux, S. Morganti, A. Veneziani, A. Reali, F. Auricchio, M. Conti, U. Morbiducci. "A patient-specific follow up study of the impact of thoracic endovascular repair (TEVAR) on aortic anatomy and on post-operative hemodynamics". *Computers & Fluids*, 141: 54-61 (2016)
  156. S. Trimarchi, A. Kamman, C. Lomazzi, S. Segreti, M. Cova, C. De Vincentiis, A. Frigiola, L.

- Menicanti, M.M. Marrocco-Trischitta, V. Grassi, S. Morganti, M. Conti, F. Auricchio, V. Rampoldi. “Activities at Thoracic Aortic Research Center, IRCCS Policlinico San Donato”, *European Heart Journal Supplements*, 18 (E): E57-E63 (2016)
157. F.J.H. Nauta, M. Conti, S. Marconi, A.V. Kamman, G. Alaimo, S. Morganti, A. Ferrara, J.A. van Herwaarden, F.L. Moll, F. Auricchio, S. Trimarchi. “An experimental investigation of the impact of thoracic endovascular aortic repair on longitudinal strain”, *European Journal of Cardio-Thoracic Surgery*, 50: 955-961 (2016)
158. G. Balduzzi, M. Aminbaghai, E. Sacco, J. Fussl, J. Eberhardsteiner, F. Auricchio. “Non-prismatic beams: A simple and effective Timoshenko-like model”, *International Journal of Solids and Structures*, 90: 236-250 (2016)
159. F. Auricchio, A. Lefieux, A. Reali, A. Veneziani. “A locally anisotropic fluid-structure interaction remeshing strategy for thin structures with application to a hinged rigid leaflet”, *International Journal for Numerical Methods in Engineering*, 107 (2): 155-180 (2016)
160. S. Morganti, N. Brambilla, A.S. Petronio, A. Reali, F. Bedogni, F. Auricchio. “Prediction of patient-specific postoperative outcomes of TAVI procedure: The impact of the positioning strategy on valve performance”, *Journal of Biomechanics*, 49: 2513-2519 (2016)
161. S. Marconi, L. Pugliese, M. Del Chiaro, R. Pozzi Mucelli, F. Auricchio, A. Pietrabissa. “An innovative strategy for the identification and 3D reconstruction of pancreatic cancer from CT images”, *Updates in Surgery*, 68(3): 273-278 (2016)
162. E. Boatti, G. Scalet, F. Auricchio. “A three-dimensional finite-strain phenomenological model for shape-memory polymers: Formulation, numerical simulations, and comparison with experimental data”, *International Journal of Plasticity*, 83: 153-177 (2016)
163. M.J. Ashrafi, J. Arghavani, R. Naghdabadi, S. Sohrabpour, F. Auricchio. “Theoretical and numerical modeling of dense and porous shape memory alloys accounting for coupling effects of plasticity and transformation”, *International Journal of Solids and Structures*, 88-89: 248-262 (2016)
164. F. Secchi, M. Ali, E. Faggiano, P. M. Cannà, M. Fedele, S. Tresoldi, G. Di Leo, F. Auricchio, F. Sardanelli. “Fractional flow reserve based on computed tomography: an overview”, *European Heart Journal Supplements*, 18 (E): E49-E56. (2016)
165. M.J. Ashrafi, J. Arghavani, R. Naghdabadi, F. Auricchio. “A three-dimensional phenomenological constitutive model for porous shape memory alloys including plasticity effects”, *Journal of Intelligent Material Systems and Structures*, 27 (5): 608-624 (2016)
166. P. Wriggers, J. Schröder, F. Auricchio. “Finite element formulations for large strain anisotropic material with inextensible fibers”, *Advanced Modeling and Simulation in Engineering Sciences*, 3 (1): 25 (2016)
167. F. Auricchio, S. Marconi. “3D Printing: Clinical applications in orthopaedics and traumatology”, *EFORT Open Reviews*, 1 (5): 121-127 (2016)
168. J. Kiendl, F. Auricchio, L. Beirao da Veiga, C. Lovadina, A. Reali. “Isogeometric collocation methods for the Reissner-Mindlin plate problem”, *Computer Methods in Applied Mechanics and Engineering*, 284 (SI): 489-507 (2015)
169. S. Morganti, F. Auricchio, D.J. Benson, F.I. Gambarin, S. Hartmann, T.J.R. Hughes, A. Reali. “Patient-specific isogeometric structural analysis of aortic valve closure”, *Computer Methods in Applied Mechanics and Engineering*, 284 (SI): 508-520 (2015)
170. M. Rezaiee-Pajand, F. Auricchio, M. Sharifian, M. Sharifian. “Exponential-based integration for Bigoni-Piccolroaz plasticity model”, *European Journal of Mechanics A-Solids*, 51: 107-122 (2015)
171. F. Auricchio, A.-L. Bessoud, A. Reali, U. Stefanelli. “A phenomenological model for the magneto-mechanical response of single-crystal magnetic shape memory alloys”, *European Journal of Mechanics A-Solids*, 52: 1-11 (2015)
172. J. Kiendl, F. Auricchio, T.J.R. Huges, A. Reali. “Single-variable formulations and isogeometric discretizations for shear deformable beams”. *Computer Methods in Applied Mechanics and*



- Engineering, 284 (SI): 988-1004 (2015)
173. F. Auricchio, M. Conti, A. Ferrara, E. Lanzarone. "A clinically applicable stochastic approach for noninvasive estimation of aortic stiffness using computed tomography data". *IEEE Transactions on Biomedical Engineering*, 62 (1): 176-187 (2015)
  174. F. Auricchio, A. Constantinescu, M. Conti, G. Scalet. "A computational approach for the lifetime prediction of cardiovascular balloon-expandable stents", *International Journal of Fatigue*, 75: 69-79 (2015)
  175. G. Scalet, F. Auricchio, E. Bonetti, L. Castellani, D. Ferri, M. Pachera, F. Scavello. "An experimental, theoretical and numerical investigation of shape memory polymers", *International Journal of Plasticity*, 67: 127-147 (2015)
  176. F. Auricchio, G. Balduzzi, C. Lovadina. "The dimensional reduction approach for 2D non-prismatic beam modelling: A solution based on Hellinger-Reissner principle", *International Journal of Solids And Structures*, 63: 264-276 (2015)
  177. M. F. Urbano, F. Auricchio. "Modeling Permanent Deformations of Superelastic and Shape Memory Materials", *Journal of Functional Biomaterials*, 6: 398-406 (2015)
  178. E. Gasparini, S.C. Tarantino, M. Conti, R. Biesuz, P. Ghigna, F. Auricchio, M.P. Riccardi, M. Zema. "Geopolymers from low-T activated kaolin: Implications for the use of alunite-bearing raw materials", *Applied Clay Science*, 114: 530-539 (2015)
  179. A. Beltempo, G. Balduzzi, G. Alfano, F. Auricchio. "Analytical derivation of a general 2D non-prismatic beam model based on the Hellinger-Reissner principle", *Engineering Structures*, 101: 88-98 (2015)
  180. V. Sepe, F. Auricchio, S. Marfia, E. Sacco. "Micromechanical analysis of porous SMA", *Smart Materials and Structures*, 24 (8): 085035 (2015)
  181. M. Ferraro, F. Auricchio, E. Boatti, G. Scalet, M. Conti, S. Morganti, A. Reali. "An Efficient Finite Element Framework to Assess Flexibility Performances of SMA Self-Expandable Carotid Artery Stents", *Journal of Functional Biomaterials*, 6 (3): 585-597 (2015)
  182. I. Bianchini, R. Argiento, F. Auricchio, E. Lanzarone. "Efficient uncertainty quantification in stochastic finite element analysis based on functional principal components", *Computational Mechanics*, 56 (3): 533-549 (2015)
  183. F. Auricchio, M. Conti, M. Ferraro, S. Morganti, A. Reali, R.L. Taylor, "Innovative and efficient stent flexibility simulations based on isogeometric analysis", *Computer Methods in Applied Mechanics and Engineering*, 295: 347-361 (2015)
  184. D. Asprone, F. Auricchio, A. Montanino, A. Reali. "Review of the modified finite particle method and application to incompressible solids", *International Journal of Multiphysics*, 9 (3): 235-248 (2015)
  185. F. Auricchio, F. Brezzi, A. Lefieux, A. Reali. "An "immersed" finite element method based on a locally anisotropic remeshing for the incompressible Stokes problem", *Computer Methods in Applied Mechanics and Engineering*, 294: 428-448 (2015)
  186. F. Auricchio, D. Boffi, L. Gastaldi, A. Lefieux, A. Reali. "On a fictitious domain method with distributed Lagrange multiplier for interface problems", *Applied Numerical Mathematics*, 95 (SI): 36-50 (2015)
  187. B. Carboni, W. Lacarbonara, F. Auricchio. "Hysteresis of Multiconfiguration Assemblies of Nitinol and Steel Strands: Experiments and Phenomenological Identification", *Journal of Engineering Mechanics*, 141 (3): 04014135 (2015)
  188. M.A. Yousef, P. Dionigi, S. Marconi, A. Calligaro, A.I. Cornaglia, E. Alfonsi, F. Auricchio. "Successful reconstruction of nerve defects using distraction neurogenesis with a new experimental device", *Basic and Clinical Neuroscience*, 6 (4): 253-264 (2015)
  189. F.J.H. Nauta, M. Conti, A.V. Kamman, G.H.W. van Bogerijen, J.L. Tolenaar, F. Auricchio, C.A. Figueroa, J.A. van Herwaarden, F.L. Moll, S. Trimarchi. "Biomechanical Changes After Thoracic Endovascular Aortic Repair in Type B Dissection: A Systematic Review", *Journal of Endovascular Therapy*, 22 (6): 918-933 (2015)

190. J.F. Caseiro, R.A.F. Valente, A. Reali, J. Kiendl, F. Auricchio, R.J. Alves de Sousa. "Assumed Natural Strain NURBS-based solid-shell element for the analysis of large deformation elastoplastic thin-shell structures", *Computer Methods in Applied Mechanics and Engineering*, 284 (SI): 861-880 (2015)
191. F. Auricchio, D. Boffi, L. Gastaldi, A. Lefieux, A. Reali. "A study on unfitted 1D finite element methods", *Computers and Mathematics with Applications*, 68 (12): 2080-2102 (2014)
192. G.H.W. van Bogaerijen, F. Auricchio, M. Conti, A. Lefieux, A. Reali, A. Veneziani, J.L. Tolenaar, F.L. Moll, V. Rampoldi, S. Trimarchi. "Aortic Hemodynamics After Thoracic Endovascular Aortic Repair, With Particular Attention to the Bird-Beak Configuration", *Journal of Endovascular Therapy*, 21 (6): 791-802 (2014)
193. F. Auricchio, G. Balduzzi, M.J. Khoshgoftar, G. Rahimi, E. Sacco. "Enhanced modeling approach for multilayer anisotropic plates based on dimension reduction method and Hellinger-Reissner principle", *Composite Structures*, 118: 622-633 (2014)
194. F. Auricchio, A. Constantinescu, G. Scalet. "Fatigue of 316L stainless steel notched  $\mu$ -size components", *International Journal of Fatigue*, 68: 231-247 (2014)
195. F. Auricchio, M. Conti, A. Lefieux, S. Morganti, A. Reali, F. Sardanelli, F. Secchi, S. Trimarchi, A. Veneziani. "Patient-specific analysis of post-operative aortic hemodynamics: a focus on thoracic endovascular repair (TEVAR)", *Computational Mechanics*, 54 (4) (SI): 943-953 (2014)
196. F. Auricchio, M. Conti, S. Morganti, A. Reali. "Simulation of transcatheter aortic valve implantation: a patient-specific finite element approach", *Computer Methods in Biomechanics and Biomedical Engineering*, 17 (12): 1347-1357 (2014)
197. F. Auricchio, M. Conti, A. Ferrara. "How Constitutive Model Complexity can affect the Capability to Fit Experimental Data: a Focus on Human Carotid Arteries and Extension/Inflation Data", *Archives of Computational Methods in Engineering*, 21 (3): 273-292 (2014)
198. S. Morganti, M. Conti, M. Aiello, A. Valentini, A. Mazzola, A. Reali, F. Auricchio. "Simulation of transcatheter aortic valve implantation through patient-specific finite element analysis: Two clinical cases". *Journal of Biomechanics*, 47 (11): 2547-2555 (2014)
199. F. Auricchio, E. Bonetti, G. Scalet, F. Ubertini. "Theoretical and numerical modeling of shape memory alloys accounting for multiple phase transformations and martensite reorientation", *International Journal of Plasticity*, 59: 30-54 (2014)
200. D. Asprone, F. Auricchio, A. Montanino, A. Reali. "A Modified Finite Particle Method: multidimensional elasto-statics and dynamics", *International Journal for Numerical Methods in Engineering*, 99 (1): 1-25 (2014)
201. F. Auricchio, G. Scalet, M. Urbano. "A Numerical/Experimental Study of Nitinol Actuator Springs", *Journal of Materials Engineering and Performance*, 23 (7) (SI): 2420-2428 (2014)
202. M. Rezaiee-Pajand, F. Auricchio, M. Sharifian, M. Sharifian. "Computational plasticity of mixed hardening pressure-dependency constitutive equations", *Acta Mechanica*, 225 (6): 1699-1733 (2014)
203. J.F. Caseiro, R.A.F. Valente, A. Reali, J. Kiendl, F. Auricchio, R.J. Alves de Sousa. "On the Assumed Natural Strain method to alleviate locking in solid-shell NURBS-based finite elements", *Computational Mechanics*, 53 (6):1341-1353 (2014)
204. F. Auricchio, M. Conti, A. Ferrara, S. Morganti, A. Reali. "Patient-specific simulation of a stentless aortic valve implant: the impact of fibers on leaflet performance", *Computer Methods in Biomechanics and Biomedical Engineering*, 17 (3): 277-285 (2014)
205. D. Asprone, F. Auricchio, A. Reali. "Modified Finite Particle Method: applications to elasticity and plasticity problems", *International Journal of Computational Methods*, 11 (1): 1350050 (2014)
206. V. Sepe, S. Marfia, F. Auricchio. "Response of porous SMA: A micromechanical study", *Frattura ed Integrità Strutturale*, 29: 85-96 (2014)

207. F. Auricchio, M. Conti, C. Ferrazzano, G.A. Sgueglia. "A simple framework to generate 3D patient-specific model of coronary artery bifurcation from single-plane angiographic images". *Computers in Biology and Medicine*, 44: 97-109 (2014)
208. G.H. van Bogerijen, J.A. van Herwaarden, M. Conti, F. Auricchio, V. Rampoldi, S. Trimarchi, F.L. Moll. "Importance of dynamic aortic evaluation in planning TEVAR". *Annals of Cardiothoracic Surgery*, 3 (3): 300-306 (2014)
209. S. Morganti, A. Valentini, V. Favalli, A. Serio, F. I. Gambarin, D. Vella, L. Mazzocchi, M. Massetti, F. Auricchio, E. Arbustini. "Aortic root 3D parametric morphological model from 2D-echo images", *Computers in Biology and Medicine*, 43 (12): 2196-2204 (2013)
210. F. Auricchio, G. Balduzzi, C. Lovadina. "The dimensional reduction modelling approach for 3D beams: Differential equations and finite-element solutions based on Hellinger–Reissner principle", *International Journal of Solids and Structures*, 50 (25-26): 4184-4196 (2013)
211. F. Auricchio, L. Beirao da Veiga, C. Lovadina, A. Reali, R.L. Taylor, P. Wriggers. "Approximation of incompressible large deformation elastic problems: some unresolved issues", *Computational Mechanics*, 52 (5): 1153-1167 (2013)
212. D. Asprone, F. Auricchio, C. Menna, A. Prota, S. Morganti, A. Reali. "Statistical Finite Element Analysis of the Buckling Behavior of Honeycomb Structures", *Composite Structures*, 105: 240-255 (2013)
213. F. Auricchio, L. Beirao da Veiga, J. Kiendl, C. Lovadina, A. Reali. "Locking-free isogeometric collocation methods for spatial Timoshenko rods", *Computer Methods in Applied Mechanics and Engineering*, 263: 113-126 (2013)
214. G. De Santis, M. Conti, B. Trachet, T. De Schryver, M. De Beule, J. Degroote, J. Vierendeels, F. Auricchio, P. Segers, P. Verdonck, B. Verheghe. "Haemodynamic impact of stent-vessel (mal)apposition following carotid artery stenting: mind the gaps!", *Computer Methods in Biomechanics and Biomedical Engineering*, 16 (6): 648-659 (2013)
215. F. Auricchio, M. Conti, A. Ferrara, S. Morganti, A. Reali. "Patient-specific finite element analysis of carotid artery stenting: a focus on vessel modeling", *International Journal for Numerical Methods in Biomedical Engineering*, 29 (6): 645-664 (2013)
216. F. Auricchio, M. Conti, S. Marconi, A. Reali, J. Tolenaar, S. Trimarchi. "Patient-specific aortic endografting simulation: from diagnosis to prediction", *Computers in Biology and Medicine*, 43 (4): 386-394 (2013)
217. F. Auricchio, E. Bonetti. "A new flexible 3D macroscopic model for shape memory alloys", *Discrete and Continuous Dynamical Systems-Series S*, 6 (2): 277-291 (2013)
218. G.H.W. van Bogerijen, J.L. Tolenaar, M. Conti, F. Auricchio, F. Secchi, F. Sardanelli, F.L. Moll, J.A. van Herwaarden, V. Rampoldi, S. Trimarchi. "Contemporary Role of Computational Analysis in Endovascular Treatment for Thoracic Aortic Disease", *Aorta*, 1 (3): 171-181 (2013)
219. F. Auricchio, L. Beirao da Veiga, T.J.R. Hughes, A. Reali, G. Sangalli. "Isogeometric collocation for elastostatics and explicit dynamics", *Computer Methods in Applied Mechanics and Engineering*, 249 (SI): 2-14 (2012)
220. F. Auricchio, F. Calabrò, T.J.R. Hughes, A. Reali, G. Sangalli. "A Simple Algorithm for Obtaining Nearly Optimal Quadrature Rules for NURBS-based Isogeometric Analysis", *Computer Methods in Applied Mechanics and Engineering*, 249 (SI): 15-27 (2012)
221. H.A.F. Argente dos Santos, F. Auricchio, M. Conti. "Fatigue life assessment of cardiovascular balloon-expandable stents: A two-scale plasticity–damage model approach", *Journal of the Mechanical Behavior of Biomedical Materials*, 15: 78-92 (2012)
222. F. Auricchio, M. Conti, M. Ferraro, A. Reali. "Evaluation of carotid stent scaffolding through patient-specific finite element analysis", *International Journal for Numerical Methods in Biomedical Engineering*, 28 (10): 1043-1055 (2012)
223. P. Totaro, S. Morganti, C.L. Ngo Yon, R. Dore, M. Conti, F. Auricchio, M. Viganò. "Computational Finite Element Analyses to Optimize Graft Sizing During Aortic Valve-Sparing Procedure", *The Journal of Heart Valve Disease*, 21 (2): 141-147 (2012)

224. M. Palmieri, G. Magenes, C.G. Lai, A. Penna, F. Bozzoni, M. Rota, G. Macchi, F. Auricchio, M.D. Mangriotis, A. Menon, A.M. Prasad, C.V.R. Murty. "Reduction of Seismic Risk of Roman And Hindu Temples", *Structural Analysis of Historical Constructions*, 1-3: 1674-1681 (2012)
225. F. Auricchio, A. Ferrara, S. Morganti. "Comparison and critical analysis of invariant-based models with respect to their ability in fitting human aortic valve data", *Annals of Solid and Structural Mechanics*, 4: 1-14 (2012)
226. F. Auricchio, M. Conti, S. Morganti, P. Totaro. "A computational tool to support pre-operative planning of stentless aortic valve implant", *Medical Engineering & Physics*, 33 (10): 1183-1192 (2011)
227. P. Totaro, S. Morganti, F. Auricchio, M. Viganò. "Computer-based analysis to optimize prosthesis sizing during aortic valve surgery", *International Journal of Cardiology*, 151 (2): 253-254 (2011)
228. G. Attanasi, F. Auricchio, M. Urbano. "Theoretical and Experimental Investigation on SMA Superelastic Springs", *Journal of Materials Engineering and Performance*, 20 (4-5): 706-711 (2011)
229. F. Auricchio, S. Morganti, A. Reali, M. Urbano. "Theoretical and experimental study of the shape memory effect of beams in bending conditions", *Journal of Materials Engineering and Performance*, 20 (4-5): 712-718 (2011)
230. M. Conti, D. Van Loo, F. Auricchio, M. De Beule, G. De Santis, B. Verhegghe, S. Pirrelli, A. Odero. "Impact of Carotid Stent Cell Design on Vessel Scaffolding: A Case Study Comparing Experimental Investigation and Numerical Simulations", *Journal of Endovascular Therapy*, 18 (3): 397-406 (2011)
231. J. Arghavani, F. Auricchio, R. Naghdabadi. "A finite strain kinematic hardening constitutive model based on Hencky strain: general framework, solution algorithm and application to shape memory alloys", *International Journal of Plasticity*, 27 (6): 940-961 (2011)
232. D. Asprone, F. Auricchio, A. Reali. "Novel Finite Particle Formulations Based on Projection Methodologies", *International Journal for Numerical Methods in Fluids*, 65 (11-12): 1376-1388 (2011)
233. F. Auricchio, M. Conti, M. De Beule, G. De Santis, B. Verhegghe. "Carotid artery stenting simulation: From patient-specific images to finite element analysis", *Medical Engineering & Physics*, 33 (3): 281-289 (2011)
234. O. Ben Mekki, F. Auricchio. "Performance evaluation of shape-memory-alloy superelastic behavior to control a stay cable in cable-stayed bridges", *International Journal of Non-Linear Mechanics*, 46 (2): 470-477 (2011)
235. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali. "An improved, fully symmetric, finite-strain phenomenological constitutive model for shape memory alloys", *Finite Elements in Analysis and Design*, 47 (2): 166-174 (2011)
236. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali. "On the robustness and efficiency of integration algorithms for a 3D finite strain phenomenological SMA constitutive model", *International Journal for Numerical Methods in Engineering*, 85 (1): 107-134 (2011)
237. G. Attanasi, F. Auricchio. "Innovative Superelastic Isolation Device", *Journal of Earthquake Engineering*, 15: 72-89 (2011)
238. F. Auricchio, M. Conti, S. Demertzis, S. Morganti. "A Finite element analysis of aortic root dilation: a new procedure to reproduce pathology based on experimental data", *Computer Methods in Applied Mechanics and Biomedical Engineering*, 14 (10): 875-882 (2011)
239. F. Auricchio, A.-L. Bessoud, A. Reali, U. Stefanelli. "A three-dimensional phenomenological model for Magnetic Shape Memory Alloys", *GAMM- Mitteilungen*, 34: 90-96 (2011)
240. F. Auricchio, L. Beirao da Veiga, T.J.R. Hughes, A. Reali, G. Sangalli. "Isogeometric Collocation Methods", *Mathematical Models and Methods in Applied Sciences*, 20 (11): 2075-2107 (2010)

241. F. Auricchio, E. Bonetti, A. Marigonda. "A metric approach to plasticity via Hamilton-Jacobi equation", *Mathematical Models and Methods in Applied Sciences*, 20 (9): 1617-1647 (2010)
242. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali, S. Sohrabpour. "A 3-D phenomenological constitutive model for shape memory alloys under multiaxial loadings", *International Journal of Plasticity*, 26 (7): 976-991 (2010)
243. P. Totaro, S. Morganti, C. N. Yon, M. Conti, A. D'Armini, F. Auricchio, M. Viganò. "Finite Element Model To Optimize Stentless Prosthesis Sizing During Aortic Valve Replacement", *British Journal of Surgery*, 97: S78-S78 (2010)
244. D. Asprone, F. Auricchio, G. Manfredi, A. Prota, A. Reali, G. Sangalli. "Particle methods for a 1D elastic model problem: error analysis and development of a second-order accurate formulation", *Computer Modeling in Engineering & Sciences (CMES)*, 62 (1): 1-22 (2010)
245. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali, S. Sohrabpour. "A 3D finite strain phenomenological constitutive model for shape memory alloys considering martensite reorientation", *Continuum Mechanics and Thermodynamics*, 22 (5): 345-362 (2010)
246. F. Auricchio, M. Conti, S. Morganti, A. Reali. "Shape Memory Alloy: from constitutive modeling to finite element analysis of stent deployment", *Computer Modeling in Engineering & Sciences (CMES)*, 57 (3): 225-243 (2010)
247. F. Auricchio, A. Reali, A. Tardugno. "Shape-memory alloys: effective 3D modeling, computational aspects and design of devices", *International Journal of Computer Applications in Technology*, 3: 199-223 (2010)
248. F. Auricchio, L. Beirao da Veiga, C. Lovadina, A. Reali. "The importance of the exact satisfaction of the incompressibility constraint in nonlinear elasticity: mixed FEMs versus NURBS-based approximations", *Computer Methods in Applied Mechanics and Engineering*, 199 (5-8): 314-323 (2010)
249. F. Auricchio, G. Balduzzi, C. Lovadina. "A new modeling approach for planar beams: finite-element solutions based on mixed variational derivations", *Journal of Mechanics of Materials and Structures*, 5 (5): 771-794 (2010)
250. F. Auricchio, A. Coda, A. Reali, M. Urbano. "SMA numerical modeling versus experimental results: parameter identification and model prediction capabilities", *Journal of Materials Engineering and Performance*, 18: 649-654 (2009)
251. M. Conti, M. De Beule, P. Mortier, D. Van Loo, P. Verdonck, F. Vermassen, P. Segers, B. Verheghe, F. Auricchio. "Nitinol Embolic Protection Filters: Design Investigation By Finite Element Analysis", *Journal of Materials Engineering and Performance*. 18: 787-792 (2009)
252. G. Attanasi, F. Auricchio, G. L. Fenves. "Feasibility investigation of superelastic effect devices for seismic isolation applications", *Journal of Materials Engineering and Performance*, 18: 729-737 (2009)
253. F. Auricchio, A. Reali, U. Stefanelli. "A macroscopic 1D model for shape memory alloys including asymmetric behaviors and transformation-dependent elastic properties", *Computer Methods in Applied Mechanics and Engineering*, 198 (17-20): 1631-1637 (2009)
254. F. Auricchio, P. Carotenuto, A. Reali. "On the geometrically exact beam model: a consistent, effective and simple derivation from three-dimensional finite elasticity", *International Journal of Solids and Structures*, 45 (17): 4766-4781 (2009)
255. G. Attanasi, F. Auricchio, G. L. Fenves. "Feasibility assessment of an innovative isolation bearing system with shape memory alloys" *Journal of Earthquake Engineering*, 13: 18-39 (2009)
256. F. Auricchio, A. Reali. "Shape Memory Alloys: Material Modeling and Device Finite Element Simulations". *Materials Science Forum*, 583: 257-275 (2008)
257. F. Auricchio, D. Fugazza, R. DesRoches. "Rate-dependent thermo-mechanical modelling of superelastic shape memory alloys for seismic applications", *Journal of Intelligent Material Systems and Structures*, 19 (1): 47-61 (2008)
258. F. Auricchio, A. Mielke, U. Stefanelli. "A rate-independent model for the isothermal quasi-

- static evolution of shape-memory materials”, *Mathematical Models and Methods in Applied Sciences*, 18 (1): 125-164 (2008)
259. J. McCormick, R. DesRoches, D. Fugazza, F. Auricchio. “Seismic assessment of concentrically-braced steel frames with shape memory alloy braces”, *ASCE Journal of Structural Engineering* 133 (6): 862-870 (2007)
  260. E. Artioli, F. Auricchio, L. Beirao da Veiga. “Generalized midpoint integration algorithms for J2 plasticity with linear hardening”, *International Journal for Numerical Methods in Engineering*, 72 (4): 422-463 (2007)
  261. F. Auricchio, L. Beirao da Veiga, A. Buffa, C. Lovadina, A. Reali, G. Sangalli. “A fully “locking-free” isogeometric approach for plane linear elasticity problems: A stream function formulation”, *Computer Methods in Applied Mechanics and Engineering*, 197 (1-4): 160-172 (2007)
  262. F. Auricchio, D. Fugazza, R. DesRoches. “A 1D rate-dependent viscous constitutive model for superelastic shape-memory alloys: formulation and comparison with experimental data”, *Smart Materials and Structures*, 16 (1): S39-S50 (2007)
  263. F. Auricchio, A. Reali, U. Stefanelli. “A three-dimensional model describing stress-induced solid phase transformation with permanent inelasticity”, *International Journal of Plasticity*, 23 (2): 207-226 (2007)
  264. E. Artioli, F. Auricchio, L. Beirao da Veiga. “Second-order accurate integration algorithms for von-Mises plasticity with a nonlinear kinematic hardening mechanism”, *Computer Methods in Applied Mechanics and Engineering*, 196 (9-12): 1827-1846 (2007)
  265. F. Auricchio, A. Reali. “A Phenomenological One-dimensional Model Describing Stress-induced Solid Phase Transformation with Permanent Inelasticity”, *Mechanics of Advanced Materials and Structures*, 14 (1): 43–55 (2007)
  266. E. Artioli, F. Auricchio, L. Beirao da Veiga. “A novel optimal exponential-based integration algorithm for von-Mises plasticity with linear hardening: Theoretical analysis on yield consistency, accuracy, convergence and numerical investigations”, *International Journal for Numerical Methods in Engineering*, 67 (4): 449-498 (2006)
  267. F. Auricchio, D. Fugazza, R. DesRoches. “Numerical and experimental evaluation of the damping properties of shape-memory alloys” *Journal of Engineering Materials and Technology*, *Transactions of the ASME* 128 (3): 312-319 (2006)
  268. J. McCormick, R. DesRoches, D. Fugazza, F. Auricchio. “Seismic vibration control using superelastic shape memory alloys” *Journal of Engineering Materials and Technology*, *Transactions of the ASME* 128 (3): 294-301 (2006)
  269. F. Auricchio, E. Sacco, G. Vairo. “A mixed FSDT finite element for monoclinic laminated plates”, *Computers & Structures*, 84 (8-9): 624-639 (2006)
  270. F. Nanni, F. Auricchio, F. Sarchi, G. Forte, G. Gusmano. “Self-sensing CF-GFRP rods as mechanical reinforcement and sensors of concrete beams”, *Smart Materials and Structures*, 15 (1): 182-186 (2006)
  271. F. Auricchio, D. Fugazza, R. DesRoches. “Earthquake Performance of Steel Frames with Nitinol Braces”, *Journal of Earthquake Engineering*, 10 (SI 1): 45-66 (2006)
  272. L. Petrini, F. Migliavacca, P. Massarotti, S. Schievano, G. Dubini, F. Auricchio. “Computational studies of Shape Memory Alloy behavior in biomedical applications”, *ASME Journal of Biomechanical Engineering* 127 (4): 716-725 (2005)
  273. E. Artioli, F. Auricchio, L. Beirao da Veiga. “Integration schemes for von-Mises plasticity based on exponential maps: numerical investigations and theoretical considerations”, *International Journal for Numerical Methods in Engineering* 64 (9): 1133-1165 (2005)
  274. F. Auricchio, U. Stefanelli. “Well-posedness and approximation for a one-dimensional model for shape memory alloys”, *Mathematical Models & Methods in Applied Sciences*, 15 (9): 1301-1327 (2005)
  275. F. Auricchio, L. Beirao da Veiga, C. Lovadina, A. Reali. “A Stability Study of some Mixed

- Elements for Finite Elasticity Problems”, *Computer Methods in Applied Mechanics and Engineering*, 194 (9-11): 1075-1092 (2005)
276. F. Auricchio, L. Beirao da Veiga, C. Lovadina, A. Reali. “An Analysis of some Mixed-Enhanced Finite Element for Plane Linear Elasticity”, *Computer Methods in Applied Mechanics and Engineering*, 194 (27-29): 2947-2968 (2005)
  277. F. Migliavacca, L. Petrini, V. Montanari, I. Quagliana, F. Auricchio, G. Dubini. “A predictive study of the mechanical behaviour of coronary stents by computer modelling”, *Medical Engineering & Physics*, 27 (1): 13-18 (2005)
  278. F. Auricchio, C. Lovadina, A.L. Madureira, “An asymptotically optimal model for isotropic heterogeneous linearly elastic plates”, *ESAIM Mathematical Modelling and Numerical Analysis*, 38 (5): 877-897 (2004)
  279. F. Migliavacca, L. Petrini, P. Massarotti, S. Schievano, F. Auricchio, G. Dubini. “Stainless and shape memory alloy coronary stents: a computational study on the interaction with the vascular wall”, *Biomechanics and Modeling in Mechanobiology*, 2 (4): 205-217 (2004)
  280. F. Auricchio, U. Stefanelli. “Numerical Analysis of a three-dimensional super-elastic constitutive model”, *International Journal for Numerical Methods in Engineering*, 61 (1): 142-155 (2004)
  281. F. Auricchio, L. Petrini. “A three-dimensional model describing stress-temperature induced solid phase transformations: solution algorithm and boundary value problems”, *International Journal for Numerical Methods in Engineering*, 61 (6): 807-836 (2004)
  282. F. Auricchio, L. Petrini. “A three-dimensional model describing stress-temperature induced solid phase transformations: thermomechanical coupling and hybrid composite applications”, *International Journal for Numerical Methods in Engineering*, 61 (6): 716-737 (2004)
  283. L. Petrini, F. Migliavacca, F. Auricchio, G. Dubini. “Numerical investigation of the intravascular coronary stent flexibility”, *Journal of Biomechanics*, 37 (4): 495-501 (2004)
  284. G.M. Calvi, P. Ceresa, D. Bolognini, C. Casarotti, F. Auricchio. “Effects of axial force variation in the seismic response of bridges isolated with friction pendulum systems”, *Journal of Earthquake Engineering*, 8 (SI1): 187-224 (2004)
  285. R.L. Taylor, F.C. Filippou, A. Saritas, F. Auricchio. “Mixed finite element method for beam and frame problems”, *Computational Mechanics*, 31 (1-2): 192-203 (2003)
  286. F. Auricchio, S. Marfia, E. Sacco. “Modelling of SMA materials: Training and two way memory effects”, *Computers & Structures*, 81 (24-25): 2301-2317 (2003)
  287. V. Cacciafesta, M.F. Sfondrini, A. Scribante, F. Auricchio. “Evaluation of friction of stainless steel and esthetic self-ligating brackets in various bracket-archwire combinations”, *American Journal of Orthodontics and Dentofacial Orthopedics*, 124 (4): 395-402 (2003)
  288. V. Cacciafesta, M.F. Sfondrini, A. Scribante, C. Klersy, F. Auricchio. “Evaluation of friction of conventional and metal-insert ceramic brackets in various bracket-archwire combinations”, *American Journal of Orthodontics and Dentofacial Orthopedics* 124 (4): 403-409 (2003)
  289. F. Auricchio, E. Sacco. “Refined first-order shear deformation theory models for composite laminates”, *Journal of Applied Mechanics*, 70 (3): 381-390 (2003)
  290. C. Lovadina, F. Auricchio. “On the enhanced strain technique for elasticity problems”, *Computer & Structures*, 81 (8-11): 777-787 (2003)
  291. F. Auricchio, L. Petrini, R. Pietrabissa, E. Sacco. “Numerical modeling of shape-memory alloys in orthodontics”, *Computer Modeling in Engineering & Sciences*, 4 (3-4): 365-380 (2003)
  292. F. Auricchio, L. Beirao da Veiga. “On a new integration scheme for von-Mises plasticity with linear hardening”, *International Journal for Numerical Methods in Engineering*, 56 (10): 1375-1396 (2003)
  293. F. Auricchio, L. Petrini. “Improvements and algorithmical considerations on a recent three-dimensional model describing stress-induced solid phase transformations”, *International Journal for Numerical Methods in Engineering*, 55 (11): 1255-1284 (2002)
  294. F. Auricchio, L. Beirao da Veiga, C. Lovadina. “Remarks on the asymptotic behaviour of Koiter

- shells”, *Computer & Structures*, 80 (9-10): 735-745 (2002)
295. 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)
  296. F. Auricchio, E. Sacco. “Thermo-mechanical response of a superelastic shape-memory wire under cyclic stretching-bending loadings”, *International Journal Solids and Structures*, 38: 6123-6145 (2001)
  297. F. Auricchio. “A robust integration-algorithm for a finite-strain shape-memory-alloy superelastic model”, *International Journal of Plasticity*, 17 (7): 971-990 (2001)
  298. F. Auricchio, M. Di Loreto, E. Sacco. “Finite element analysis of a stenotic artery revascularization through stent insertion”, *Computer Methods in Biomechanics and Biomedical Engineering*, 4: 249-263 (2001)
  299. M. Arrigoni, F. Auricchio, V. Cacciafesta, L. Petrini, R. Pietrabissa. “Mechanical characterisation of orthodontic superelastic Ni-Ti wires”, *Journal de Physique IV*, 11 (PR8): 577-582 (2001)
  300. F. Auricchio. “Three-dimensional modeling of shape-memory materials”, *Journal de Physique IV*, 11 (PR8): 509-514 (2001)
  301. G. Alfano, F. Auricchio, L. Rosati, E. Sacco. “MITC finite elements for laminated composite plates”, *International Journal for Numerical Methods in Engineering*, 50 (3): 707-738 (2001)
  302. F. Auricchio, P. Bisegna, C. Lovadina. “Finite element approximation of piezoelectric plates”, *International Journal for Numerical Methods in Engineering*, 50 (6): 1469-1499 (2001)
  303. F. Auricchio, C. Lovadina, E. Sacco. “Analysis of mixed finite elements for laminated composite plates”, *Computer Methods in Applied Mechanics and Engineering*, 190 (35-36): 4767-4783 (2001)
  304. F. Auricchio, C. Lovadina. “Analysis of kinematic linked interpolation methods for Reissner-Mindlin plate problems”, *Computer Methods in Applied Mechanics and Engineering*, 190 (18-19): 2465-2482 (2001)
  305. F. Auricchio, C. Lovadina. “Partial selective reduced integration schemes and kinematic linked interpolations for plate bending problems”, *Mathematical Models and Methods in Applied Sciences*, 9 (5): 693-722 (1999)
  306. F. Auricchio, E. Sacco. “Partial mixed formulation and refined models for the analysis of composite laminates with a FSDT”, *Composites Structures*, 46 (2): 103-113 (1999)
  307. F. Auricchio, E. Sacco. “A mixed-enhanced finite-element for the analysis of laminated composite plates”, *International Journal for Numerical Methods in Engineering*, 44 (10): 1481-1504 (1999)
  308. F. Auricchio, E. Sacco. “A temperature-dependent beam for shape-memory alloys: constitutive modelling, finite-element implementation and numerical simulations”, *Computer Methods in Applied Mechanics and Engineering*, 174 (1-2): 171-190 (1999)
  309. F. Auricchio, R.L. Taylor. “A return-map algorithm for general associative isotropic elastoplastic materials in large deformation regimes”, *International Journal of Plasticity*, 15 (12): 1359-1378 (1999)
  310. C. Callari, F. Auricchio, E. Sacco. “A finite-strain Cam-clay model in the framework of multiplicative elasto-plasticity”, *International Journal of Plasticity*, 14 (12): 1155-1187 (1998)
  311. A. Masud, M. Panahandeh, F. Auricchio. “A finite-strain finite element model for the pseudoelastic behavior of shape memory alloys”, *Computer Methods in Applied Mechanics and Engineering*, 148 (1-2): 23-37 (1997)
  312. F. Auricchio. “A viscoplastic constitutive equation bounded between two generalized plasticity models”, *International Journal of Plasticity*, 13 (8-9): 697-721, (1997)
  313. 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)



314. F. Auricchio, E. Sacco. “A superelastic shape-memory-alloy beam model”, *Journal of Intelligent Materials and Structures*, 8: 489-501 (1997)
315. 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)
316. F. Auricchio, J. Lubliner. “A uniaxial model for shape-memory alloys”, *International Journal of Solids and Structures*, 34 (27): 3601-3618 (1997)
317. F. Auricchio, R.L. Taylor, J. Lubliner. “Shape-memory alloys: macromodelling and numerical simulations of the superelastic behavior”, *Computer Methods in Applied Mechanics and Engineering*, 146 (3-4): 281-312 (1997)
318. F. Auricchio, E. Sacco. “Augmented Lagrangian finite-elements for plate contact problems”, *International Journal for Numerical Methods in Engineering*, 39 (24): 4141-4158 (1996)
319. J. Lubliner, F. Auricchio. “Generalized plasticity and shape-memory alloys”, *International Journal of Solids and Structures*, 33 (7): 991-1003 (1996)
320. F. Auricchio, R.L. Taylor. “Two material models for cyclic plasticity: nonlinear kinematic hardening and generalized plasticity”, *International Journal of Plasticity*, 11 (1): 65-98 (1995)
321. F. Auricchio, R.L. Taylor. “A triangular thick plate finite element with an exact thin limit”, *Finite Element in Analysis and Design*, 19 (1-2): 57-68 (1995)
322. F. Auricchio, R.L. Taylor. “A shear deformable plate element with an exact thin limit”, *Computer Methods in Applied Mechanics and Engineering*, 118 (3-4): 393-412 (1994)
323. F. Auricchio, R.L. Taylor. “A generalized visco-plasticity model and its algorithmic implementation”, *Computers & Structures*, 53 (3): 637-647 (1994)
324. F. Auricchio, R.L. Taylor. “A generalized elasto-plastic plate theory and its algorithmic implementation”, *International Journal for Numerical Methods in Engineering*, 37 (15): 2583-2608 (1994)
325. J. Lubliner, R.L. Taylor, F. Auricchio. “A new model of generalized plasticity”, *International Journal Solids and Structures*, 30 (22): 3171-3184 (1993)
326. R.L. Taylor, F. Auricchio. “Linked interpolation for Reissner-Mindlin plate elements: Part II - a simple triangle”, *International Journal for Numerical Methods in Engineering*, 36 (18): 3057-3066 (1993)

## CHAPTERS IN BOOKS

1. F. Auricchio, C. Maletta, G. Scalet, E. Sgambitterra. “Chapter 7 – Fatigue and fracture”, pages 195-243, in “Shape Memory Alloy Engineering (Second Edition) For Aerospace, Structural, and Biomedical Applications”, A. Concilio, V. Antonucci, F. Auricchio, L. Lecce, E. Sacco editors, Butterworth-Heinemann, 2021
2. G. Scalet, F. Auricchio. “Chapter 10 – Advanced constitutive modeling”, pages 345-379, in “Shape Memory Alloy Engineering (Second Edition) For Aerospace, Structural, and Biomedical Applications”, A. Concilio, V. Antonucci, F. Auricchio, L. Lecce, E. Sacco editors, Butterworth-Heinemann, 2021
3. L. Casagrande, L. Esposito, C. Menna, D. Asprone, F. Auricchio. “Mechanical Characterization of Cement-Based Mortar Used in 3DCP Including Early-Age Creep Effects”, pages 407-416, in “RILEM Bookseries”, F.P. Bos, S.S. Lucas, R.J.M. Wolfs, T.A.M. Salet editors, Springer, 2020
4. E. Lanzarone, S. Marconi, M. Conti, F. Auricchio, I. Fassi, F. Modica, C. Pagano, G. Pourabdollahian. “Hospital Factory for Manufacturing Customised, Patient-Specific 3D Anatomic-Functional Models and Prostheses”, pages. 233-254, in “Factories of the Future”, T. Tolio, G. Copani and W. Terkaj editors, Springer, 2019
5. S. Morganti, M. Conti, A. Reali, F. Auricchio. Predictive Computational Models of Transcatheter Aortic Valve Implantation, pages 29-46, in “Transcatheter Aortic Valve

- Implantation - Clinical, Interventional and Surgical Perspectives”, A. Giordano, G. Biondi-Zoccai, G. Frati editors, Springer, 2019
6. T.M.J. Van Bakel, F.J.H. Nauta, M. Conti, R. Romarowski, S. Morganti, J.A. Van Herwaarden, C.A. Figueroa, F. Auricchio, S. Trimarchi. Novel understanding on thoracic aortic diseases from bioengineering concepts, pages 141-148, in “Surgical Management of Aortic Pathology: Current Fundamentals for the Clinical Management of Aortic Disease”, O.H. Stanger, J.R. Pepper, L.G. Svensson editors, Springer, 2019
  7. M. Conti, S. Morganti, A. Finotello, R.M. Romarowski, A. Reali, F. Auricchio. “Aortic endovascular surgery”, pages 167-184, in “SEMA SIMAI Springer Series”, Springer, 2018
  8. F. Auricchio, M. Conti, A. Lefieux, S. Morganti, A. Reali, G. Rozza, A. Veneziani. “Computational methods in cardiovascular mechanics”, in “Cardiovascular Mechanics”, M.R. Labrosse. CRC – Taylor & Francis, 2018
  9. G. Scalet, F. Auricchio. “Shape memory alloys: Constitutive modeling and engineering simulations”, in “Alloys and Intermetallic Compounds: From Modeling to Engineering”, Taylor & Francis Inc, 2017
  10. F. Auricchio, A. Lefieux, A. Reali. “On the Use of Anisotropic Triangles with Mixed Finite Elements: Application to an “Immersed” Approach for Incompressible Flow Problems”, pages 195-236, in “Advanced Finite Element Technologies”, J. Schröder and P. Wriggers editors, Springer, 2016
  11. A. Lefieux, F. Auricchio, M. Conti, S. Morganti, A. Reali, S. Trimarchi, A. Veneziani. “Computational study of aortic hemodynamics: from simplified to patient-specific geometries”, pages 397-407, in “Modeling and Simulation in Science, Engineering and Technology”, N. Bellomo and T. E. Tezduyar editors, Springer, 2016
  12. F. Auricchio, F. Brezzi, A. Lefieux, A. Reali. “Numerical studies on the stability of mixed finite elements over anisotropic meshes arising from immersed boundary stokes problems”, pages 319-330, in “Modeling and Simulation in Science, Engineering and Technology”, Y. Bazilevs and K. Takizawa editors, Springer, 2016
  13. F. Auricchio, S. Marconi, G. Alaimo. “Materiali per la stampa 3D: possibilità attuali e prospettive future”, pages 65-80, in “STAMPA 3D. Azienda, economia, finanza, IT, brevetti, lavoro, sicurezza, ambiente. Profili giuridici e opportunità di business”, C. Galli and A. Zama editors, Second Edition, Filodiritto, 2015
  14. C. Menna, F. Auricchio, D. Asprone. “Applications of Shape Memory Alloys in Structural Engineering”, pages 369-403, in “Shape Memory Alloy Engineering for Aerospace, Structural and Biomedical Applications”, L. Lecce and A. Concilio editors, Elsevier, 2015
  15. F. Auricchio, E. Boatti, M. Conti. “SMA Biomedical Applications”, pages 307-341, in “Shape Memory Alloy Engineering for Aerospace, Structural and Biomedical Applications”, L. Lecce and A. Concilio editors, Elsevier, 2015
  16. F. Auricchio, E. Boatti, M. Conti. “SMA Cardiovascular Applications and Computer-Based Design”, pages 343-367, in “Shape Memory Alloy Engineering for Aerospace, Structural and Biomedical Applications”, L. Lecce and A. Concilio editors, Elsevier, 2015
  17. F. Auricchio, M. Conti, S. Morganti. “Aortic Biological Prosthetic Valve for Open-Surgery and Percutaneous Implant: Procedure Simulation and Performance Assessment”, pages 131-168, in “Cardiovascular and Cardiac Therapeutic Device”, T. Franz editor, Springer, 2014

## BOOKS

1. Section Editor for the book “Shape Memory Alloy Engineering”, Second Edition, 2019
2. Section Editor for the book “Shape Memory Alloy Engineering for Aerospace, Structural and Biomedical Applications”, 2014

