

Anna Pandolfi - Curriculum Vitae

1 General Information

1.1 Personal Data

Name: Anna Marina Pandolfi

Birthplace: Como

Citizenship: Italian

Spoken Languages: Italian, English

Working Address: Dipartimento di Ingegneria Civile ed Ambientale, Politecnico di Milano

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1.2 Education

- Ph.D. in Mechanics, December 7, 2007
Laboratoire de Physique et Mécanique des Matériaux (LPMM)
Université Paul Verlaine de Metz, France
Thesis Title: “Théories Cohésives de Rupture pour l’Analyse Numérique de l’Endommagement des Matériaux” (Cohesive Theories of Fracture in Numerical Modeling of Material Failure).
- Engineering habilitation (Esame di Stato)
Politecnico di Milano, Italy, 1984.
- Master of Science in Civil Engineering (Structural Engineering), *Cum laude*, June 14, 1984
Politecnico di Milano, Italy
Thesis Title: “Archi in muratura: Analisi numeriche sino a collasso e confronti con risultati sperimentali” (Arches on Masonry: Numerical Failure Analyses and Comparison with Experimental Results)
- High School: Classical Studies, July 1978
Liceo Classico Alessandro Volta, Como (Italy).

1.3 Professional Appointments

- **January 2017–to date**
Professor of Structural Mechanics, Civil and Environmental Engineering Department (DICA), Politecnico of Milano, Industrial Engineering School.
- **January 2013–to December 2016**
Associate Professor of Structural Mechanics, Civil and Environmental Engineering Department (DICA), Politecnico of Milano, Industrial Engineering School.
- **January 2008–April 2013**
Permanent Visiting Associate, Division of Engineering and Applied Sciences, California Institute of Technology, Pasadena, CA, USA.
- **June 11–June 22, 2012**
Visiting Professor, Laboratoire de Mécanique et Génie Civil, IRSN/CNRS laboratory MIST, Université Montpellier II, Montpellier, France.
- **July 9, 2008 October 8, 2008**
Chercheur Associé CNRS, at the Laboratoire Soils, Solids, Structures - Risques (3S-R), Institut National Polytechnique de Grenoble.
- **March 2005–August 2005**
Visiting Associate, Division of Engineering and Applied Sciences, California Institute of Technology, Pasadena, CA, USA.
- **September 2001–December 2012**
Associate Professor of Structural Mechanics, Structural Engineering Department (DIS), Politecnico of Milano, Industrial Engineering School.
- **March 2001–August 2001**
Visiting Associate, Division of Engineering and Applied Sciences, California Institute of Technology, Pasadena, CA, USA.
- **September 1996–August 1998**
Visiting Associate, Division of Engineering and Applied Sciences, California Institute of Technology, Pasadena, CA, USA.
- **July 1995–August 2001**
Assistant Professor of Structural Mechanics, Politecnico of Milano, Engineering School.
- **January 1989–June 1995**
Self-Employee, consultant and successively owner of Alphard S.r.l. (software house company specialized in technical and scientific software). Teaching assistant, Politecnico of Milano.
- **October 1987–December 1988**
Employee, RockSoil S.p.A. Milano, Geotechnical Engineering Company.
- **June 1984–September 1987**
Research fellow at the Structural Engineering Department of the Politecnico of Milano, awarded with a two-year grant for research and teaching by I.B.M. Italy. Teaching Assistant in Strength of Materials and Soil and Rock Mechanics courses.

2 Research Experience

2.1 Visiting Periods Abroad

- **2022:** February 24–March 25; July 21–August 29;
2021: February 27–March 31; July 19–August 26;
2020: February 18–July 8;
2019: February 15–March 31; August 1–September 1;
2018: March 3–March 31; August 2–September 5;
2017: March 3–April 5; August 1–September 1;
2016: April 12–May 21; August 16–September 5;
2015: March 6–April 30; June 19–28; August 1–29;
2014: March 3–May 8; November 20–30;
2013: February 28–May 4; August 19–September 4;
2012: February 27–May 1; July 19–August 30;
2011: March 1–May 4; July 12–August 26;
2010: March 6–May 1; July 30–August 29;
2009: March 16–April 17; July 13–August 29;
2008: March 5–April 19; August 2–August 29;
2007: March 3–March 24; May 31–June 26, July 26–August 24;
2006: February 28–March 31; June 25–August 30;
2005: February 24–August 31;
2004: March 3–April 5; May 14–June 18;
2003: February 16–March 16; April 22–May 22; July 17–August 31;
2002: February 25–March 26, July 18–August 15;
2001: March 6–August 31;
2000: May 3–June 9; August 1–September 2;
1999: April 1–May 31; July 24–September 6;
September 1996–August 1998:
 Graduate Aerospace Laboratories and Control and Dynamical Systems, California Institute of Technology, Pasadena, CA, USA, Professors Michael Ortiz.
- **May 1–6, 2022;**
Nov 23–26, 2021;
Oct 21–23, 2019;
 Institut de recherche en Génie-Civil et Mécanique École Centrale de Nantes, Professor Laurent Stainier.
- **November 13–14, 2019;**
June 3–8, 2018;
December 6–8, 2017;
 Institut für Mechanik und Regelungstechnik, Universität Bonn, Germany, Professor Michael Ortiz.
- **November 15–16, 2019;**
July 1–6, 2018;
November 23–27, 2016;
September 1–2, 2014;
July 1–2, 2014;
February 18–20, 2013;
May 7–9, 2012;
September 21–26, 2009;
June 17–23, 2009;
 Institut für Mechanik und Regelungstechnik, Universität Siegen, Germany, Professor Kerstin Weinberg.
- **June 23–27, 2014:**

Robotics Laboratory POSTECH, Pohang University of Science and Technology, South Korea, Professor Wan Kyun Chung.

- **June 11–22, 2012:**
Laboratoire de Mécanique et Génie Civil, IRSN/CNRS laboratory MIST, Université de Montpellier, France, Professor Stéphane Pagano.
- **May 24–25, 2012:**
University of Newcastle, NSW, Australia Professor Kristian Krabbenhoft.
- **May 11–22, 2009:**
Dipartimento de Matematica Applicada III, Universitat Politècnica de Catalunya, Barcelona, Spain, Professor Irene Arias.
- **April 26–May 2, 2009:**
Fakultät Bauingenieurwesen, Technische Universität Dresden, Germany, Professor Michael Kaliske.
- **July 9, 2008–October 8, 2008:**
Laboratoire Soils, Solids, Structures - Risques (3S-R), Institut National Polytechnique de Grenoble, Professor Benjamin Loret.
- **August 26–31, 2007:**
School of Engineering, Durham University, UK, Professor Roger Crouch.
- **January 27–February 3, 2006:**
Royal Institute of Technology of Stockholm, Sweden, Professor Gerhard A. Holzapfel.
- **September 29–30, 2005:**
Institute of Structural Mechanics, Universität of Stuttgart, Germany, Professor Ekkehart Ramm.
- **September 26–28, 2005:**
Technische Universität Kaiserslautern, Germany, Professor Paul Steinmann.
- **June 16–21, 2002:**
Mathematisches Institut der Universität Koln, Germany, Professor Friedemann Schuricht.

2.2 Short Visits to Italian Scientific Institutions

- **January 25–27, 2011:**
Università del Salento, Dipartimento di Ingegneria dell’Innovazione, Professor Gaetano Napoli.
- **December 9–10, 2010:**
Università di Salerno, Dipartimento di Ingegneria Civile, Professor Maurizio Angelillo.
- **June 10–12, 2009:**
Università del Salento, Dipartimento di Ingegneria dell’Innovazione, Professor Gaetano Napoli.
- **April 16–17, 2007:**
Università di Ferrara, Dipartimento di Ingegneria, Professor Giampietro Del Piero.
- **October 20–21, 2005:**
Università di Trento, Dipartimento di Ingegneria Meccanica e Strutturale, Professor Davide Bigoni.
- **November 16–17, 2004:**
Università di Salerno, Dipartimento di Ingegneria Civile, Professor Maurizio Angelillo.
- **September 6–7, 2004:**
Università di Trento, Dipartimento di Ingegneria Meccanica e Strutturale, Professor Walter Drugan (Visiting Professor a Trento).

- **February 2–3, 2004:**
CNR, Pisa, dottor Alessandro Fortunelli.
- **November 28–29, 2001; November 20–21, 2003:**
CRS4, Pula CA, ingegner Giorgio Fotia.

2.3 Scientific Associations and Committees

- Member of **EUROMECH COUNCIL** for Solids, 2016-2021.
- Coordinator, Scientific Committee of **GIMC** (AIMETA Italian Computational Mechanics Group), June 2016–September 2019.
- General Assembly member of **IACM** (International Association of Computational Mechanics), since 2016.
- Committee member of **ESIS TC5** (European Structural Integrity Society, “Dynamics of fracture and structural transformations”), since January 2015.
- National coordinator of the **SNSdC** (National Secretariat of Structure and Materials Mechanics), 2014–2017.
- Conference Committee member of **EUROMECH EMMCC** (European Mechanics of Materials Conference), since January 2012.
- Scientific Committee member of **GIMC** (AIMETA Italian Computational Mechanics Group), October 2013–June 2016.
- Coordination Committee member **SISCO**, Societa’ Italiana di Scienza delle Costruzioni, 2018–2021.
- Founding member **SISCO**, Societa’ Italiana di Scienza delle Costruzioni, 2017.
- Founding member **ISHO**, International Society of High-Tech in Ophthalmology, 2016.
- Member **ASME**, American Society of Mechanical Engineering, since 2018.
- Member **SES**, Society of Engineering Science, since 2016.
- Member **ESB**, European Society of Biomechanics, since 2011.
- Member **GNFM**, Italian Group of Physics and Mathematics, since 2008.
- Member **EUROMECH**, European Mechanics Society, since 2003.
- Member **GIMC** (AIMETA Italian Computational Mechanics Group), since 2001.
- Member **AIMETA**, Italian Association of Theoretical and Applied Mechanics, since 2001.

2.4 PostDoc tutoring

1. **Alessandra Bonfanti**, (MSCA Fellowship), November 2021-October 2023
2. **Deborah Briccola**, January 2019-December 2019
3. **Aram Cornaggia**, January 2019-December 2019
4. **Marianna Tomasin**, September 2018-December 2018
5. **Andrea Montanino**, December 2016-March 2018
6. **Maria Laura De Bellis**, November 2014-November 2016

3 Research Projects and Grants

3.1 Coordination of International Research Projects

- **Vigoni Program 2012-2013**
“Thermal crack evolution in thin wall structures”. Grant **5 K Euro**.
Universität Siegen: Kerstin Weinberg;
Politecnico: Anna Pandolfi.
- **Vigoni Program 2007-2008**
“Numerical simulations of damage and failure in thin wall structures”. Grant **10 K Euro**.
Technische Universität Berlin: Kerstin Weinberg;
Politecnico: Anna Pandolfi.

3.2 Collaboration in International Research Projects

- **PSAAP 2008-2012**
Alliance Sandia National Laboratory & California Institute of Technology, University of Michigan Ann Arbor, Purdue University, Stanford University, University of Texas at Austin “Predictive Science Academic Alliance Program”
(<http://www.sandia.gov/NNSA/ASC/univ/psaap.html>).
- **Rocca Project 2007**
“Failure analysis of inertial MEMS sensors subject to impacts: A multiscale-statistical approach”.
MIT: Raul Radovitzky;
Politecnico: Stefano Mariani, Anna Pandolfi.
- **ASC/ASAP 1996-2006**
Alliance Lawrence Livermore National Laboratory & California Institute of Technology, “Modelling the dynamic response of solids”
(<http://www.llnl.gov/asci/alliances/caltech.html>).

3.3 Collaboration in Italian Research Projects

- **PRIN 2010**
“Mathematics and Mechanics of Soft Tissues and Biological Assemblies”, national coordinator Giuseppe Saccomandi, local coordinator Paolo Biscari.
- **PRIN 2007**
“Multi-scale problems with complex interactions in Structural Engineering”, local and national coordinator Alberto Corigliano.
- **PRIN 2005**
“Interfacial resistance and failure in materials and structural systems”, local and national coordinator Alberto Corigliano.
- **PRIN 2004**
“Innovative Materials and devices micro and nano-structured: multiscale modelling and experimentation”, local coordinator, Alberto Taliercio; national coordinator, Carlo Cingolani.
- **COFIN 2003**
“Modelling, identification and interfacial damage monitoring in layered structural elements”, local coordinator, Alberto Corigliano; national coordinator, Antonio Tralli.
- **COFIN 1998**
“Design of materials and structural elements for dental implant applications”. local coordinator, Francesco Genna; national coordinator, Roberto Contro.

3.4 Research Grants and Contracts

- **Cathie Associates** “Pile tip dynamic buckling during pile driving in hard soils”, (2018-2019) 28 K Euro, Cathie reference Emilio Nicolini.
- **iVis Technologies** “Numerical modelling of the in-vivo mechanical behavior of the human cornea”, (2018-2019) 28 K Euro, iVis reference Giuseppe D’Ippolito.
- **Ente Nazionale Idrocarburi (ENI)**
“Development of a stress and fracture analysis software for the planning and the design of hydraulic fracture campaigns in non-conventional shale gas and shale oil fields”, Research contract, Grant: **137 K Euro** (2014-2016), ENI reference Marco Sciortino.
- **Ente Nazionale Idrocarburi (ENI)**
“Determination of the initial stress state at bore-hole level through inverse analysis”, Research contract, Grant: **50 K Euro** (2010-2011), ENI reference Gaia Capasso.

3.5 Patents

- **USA Patent 2016**
Patent US009464001B2, October 11, 2016: “Engineered aggregates for metamaterials”, Mitchell, Pandolfi, and Ortiz, California Institute of Technology.

4 Teaching and Advising Activity

4.1 Courses at the Engineering School of the Politecnico di Milano

- 2008, 2010, 2012, 2014-2022: **An Introduction to Nonlinear Solid Mechanics (26–30 h)**
Doctoral Schools in Structural, Earthquake and Geotechnical Engineering; Aeronautical Engineering; Mechanical Engineering; and Mathematical Methods and Models Applied to Engineering.
- 2003, 2011–2022: **Advanced Solid Mechanics and Structural Mechanics (140 h)**
Bachelor Degree in Aeronautical Engineering
- 2004–2011: **Structural and Thermal Finite Element Analysis (60 h)**
Master Degree in Energy Engineering
- 2001–2022: **Solid and Structural Mechanics (84 h)**
Bachelor Degree in Energy Engineering
- 2001–2003: **Mechanics of Structures**, Bachelor Degree in Energy Engineering Aeronautical Engineering School;
- 2000–2001: **Solid Mechanics**, Diploma Mechanical Engineering School;
- 1999–2000: **Mechanics of Structures**, Diploma Aeronautical Engineering School.

4.2 Master Science Thesis adviser

1. Giulia Merlini, Biomedical Engineering, Polimi, 2021.
2. Alessio De Juli, Civil Engineering, Polimi, 2020.
3. Marzio Cuni, Civil Engineering, Polimi, 2020.
4. Debora Conti, Biomedical Engineering, Polimi, 2020.
5. Elvira Maria Soriano, Biomedical Engineering, Polimi, 2020.
6. Marta Felizietti, Biomedical Engineering, Polimi, 2020.
7. Laura Maria Clerici, Biomedical Engineering, Polimi, 2020.
8. Matteo Cusini, Energy Engineering, Polimi, 2014.
9. Paolo Bergna, Energy Engineering, Polimi, 2014.
10. Claudia Abbenda, Biomedical Engineering, Università Campus Biomedico, Roma, 2010.
11. Laura Spinelli, Biomedical Engineering, Polimi, 2009.
12. Valentina Triacca, Biomedical Engineering, Polimi, 2009.
13. Simone Dotti, Energy Engineering, Polimi, 2009.
14. Paolo Redaelli, Civil Engineering, Polimi, 2003.
15. Davide Camagni, Civil Engineering, Polimi, 2002.
16. Edoardo Macchiarulo, Civil Engineering, Polimi, 2000.

4.3 Activity in Doctoral Schools

- **Models and Mathematical Methods for Engineering**, Doctoral School faculty member, Dipartimento di Matematica, Politecnico di Milano, 2011-2017.
- **Structural, Earthquake and Geotechnical Engineering**, Doctoral School faculty member, Dipartimento di Ingegneria Strutturale, Politecnico di Milano, 2000-2013.
- **Master and Doctoral Courses:**
 - **Teacher** in the course in “Computational Mechanics”, Master Erasmus Mundus, UPC, Barcelona (May 2009).
 - **Coordinator and Teacher** of the Course “Advanced Finite Element Methods for Continuum Mechanics Training”, EUA4X (European Atelier for Engineering and Computational Sciences), Padova (April 2006).
 - **Teacher** in the course “Computational Mechanics of Material and Structures”, COMMAS Summer School, Stuttgart (October, 2003)
 - **Responsible and Teacher** in the course “Nonlinear analysis of structures with the Finite Element Method”, Doctoral School in Structural Engineering, Università di Roma I La Sapienza (January 2003).
 - **Teacher** in the course “Solid Mechanics”, Master in Fluid-dynamics, CRS4, Cagliari (April 2002 and March 2003).
- **Doctoral Thesis Adviser:**
 1. **Teresa Netti**, Ingegneria Strutturale, Sismica e Geotecnica, Politecnico di Milano, planned in 2020.
 2. **Gianluca Caramiello**, Ingegneria Strutturale, Sismica e Geotecnica, Politecnico di Milano, planned in 2018.
 3. **Irene Simonini**, Mathematical Models and Methods in Engineering, Politecnico di Milano, 2016.
 4. **Stephanie Mitchell** (coadvisor), Aeronautics, Caltech, Pasadena, CA, 2015.
 5. **Giovanna Bucci**, Ingegneria Strutturale, Sismica e Geotecnica, Politecnico di Milano, 2012.
 6. **Adriano Zaffora** (coadvisor), Ingegneria Strutturale, Sismica e Geotecnica, Politecnico di Milano, 2011.
 7. **Anna Ferrara**, Ingegneria Strutturale, Sismica e Geotecnica, Politecnico di Milano, 2007.
 8. **Federico Manganiello**, Ingegneria delle Strutture, Politecnico di Milano, 2006.
 9. **Paolo Manfredini** (coadvisor), Ingegneria delle Strutture, Politecnico di Milano, 2001.
 10. **Rena Chengxiang Yu** (coadvisor), Aeronautics, Caltech, Pasadena, CA, 2001.
- **Member of Final Committee or Jury** for Doctoral Candidates:
 1. **Chloé Giraudet**, Institut Polytechnique de Paris, June 22, 2022.
 2. **Diego Uribe**, CEMEF Equipe CSM, Sophia Antipolis, July 9, 2021.
 3. **Marek Werner**, Institut für Mechanik und Regelungstechnik, Universität Siegen, Germany, February 8, 2021.
 4. **Aurel Qinami**, Institute for Structural Analysis, Technische Universität Dresden, Germany, October 8, 2020.
 5. **Kokouvi Gbtechi**, Université de Lorraine, France, June 24, 2020.
 6. **Adrien Socié**, Université de Montpellier, France, November 20, 2019.

7. **Elisaveta Dimitrievna Wobbes**, Technical University Delft, The Netherlands, December 18, 2019.
8. **Daniele Bianchi**, Università di Roma Tor Vergata April 20, 2018.
9. **Miguel Angle Ariza-Gracia**, Universidad de Zaragoza, Spain, September 8, 2017.
10. **Francesco Ancellotti**, Università degli Studi di Brescia, April 18, 2017.
11. **PhD Final Exam**, Università degli Studi di Palermo, April 7, 2017.
12. **Mathematical Models and Methods for Engineering PhD Final Exam**, Politecnico di Milano, February 2, 2017.
13. **Lionel Bichet**, Université de Montpellier, France, January 30, 2017.
14. **Pietro Mascheroni**, Università degli Studi di Padova, December 15, 2016.
15. **Jean-Philippe Noyel**, Laboratoire de Mécanique des Contacts et des Structures, INSA de Lyon, France, December 8, 2015.
16. **Stephanie J. Mitchell**, Aeronautics, Caltech, Pasadena, CA, June 22, 2015.
17. **Meccanica Computazionale e Materiali Avanzati PhD Final Exam**, Università degli Studi di Pavia, January 27, 2015.
18. **Thanh-Nam Le**, Civil Engineering and Urban Planning INSA de Rennes and Structural Design and Bridges KTH Stockholm; Rennes, France, October 18, 2013.
19. **Newfal Blal**, Applied Mechanics, Université Montpellier II, France, September 12, 2013.
20. **P Venkateswara Rao**, Applied Mechanics, Indian Institute of Technology Madras, Chennai, India, May 2013.
21. **Shuang Wan**, Mechanics, Université de Montpellier II, France, December 14, 2012.
22. **Luis Saucedo**, Civil Engineering, Universidad de Ciudad Real, Spain, October 26, 2012.
23. **Luigi Emanuele Perotti**, Mechanics, Caltech, Pasadena, CA, October 1, 2010.
24. **Structural, Earthquake and Geotechnical Engineering PhD Final Exam**, Politecnico di Milano, March 2010.
25. **Gordon Geissler**, Institute for Structural Analysis, Technische Universität Dresden, Germany, April 29, 2009.
26. **Leopoldo Greco**, Università degli Studi di Catania, November 28, 2008.
27. **Thomas Menouillard**, Laboratoire de Mécanique des Contacts et des Structures, INSA de Lyon, September 20, 2007.
28. **Gabriela Bilbie**, Laboratoire 3S-R, Université Joseph Fourier, Grenoble, July 13, 2007.
29. **Olivier Nguyen**, Graduate Aeronautic Laboratories, Caltech, Pasadena, CA, July 11, 2001.
30. **Rena Chengxiang Yu**, Graduate Aeronautic Laboratories, Caltech, Pasadena, CA, May 22, 2001.

• **Tutoring of visiting PhD students**

1. **Alessandra Bonfanti**, (MSCA Fellowship), November 2021-October 2023
2. **Deborah Briccola**, January 2019-December 2019
3. **Aram Cornaggia**, January 2019-December 2019
4. **Marianna Tomasin**, September 2018-December 2018
5. **Andrea Montanino**, December 2016-March 2018
6. **Maria Laura De Bellis**, November 2014-November 2016

5 Scientific Activity

5.1 Guest Editor

1. Guest Editor, with Michael Kaliske, in the special issue of International Journal of Fracture on “Computational approaches for the modeling of complex crack path and patterns”, December 2019.
2. Guest Editor, with Giuseppe Vairo, in the special issue of Journal of Biomechanical Engineering - ASME “ESB-ITA Annual Congress”, related to the 2016 Meeting of the Italian Chapter of European Society of Biomechanics, held in Roma, September 28-29, 2016.
3. Guest Editor, with Sonia Marfia and Alessandro Reali, in the special issue of Meccanica “Novel solution approaches to old and new engineering problems. A special issue on Computational Mechanics”, related to the Italian Group of Computational Mechanics Meeting held in Lucca, June 27-29, 2016.
4. Guest Editor, with Kerstin Weinberg, in the special issue of the Journal of the Mechanics and Physics of Solids to honor professor Michael Ortiz in occasion of his 60th Birthday.

5.2 Editorial Board Member for International Scientific Journals

1. Meccanica (Springer), Editor in Chief, 2021–to date
2. Scientific Reports (Springer), Associate Editor, 2022–to date
3. ASME Journal of Engineering Materials and Technology, Associate Editor, 2018–2024
4. International Journal of Fracture (Springer), Regional Editor, 2017–2023
5. Modeling and Artificial Intelligence in Ophthalmology (Kugler) 2015–to date
6. Mechanics of Soft Materials (Springer) 2017–to date
7. Rakenteiden Mekaniikka (Finnish Journal of Structural Mechanics) 2016–to date
8. PLOS ONE, Academic Editor, 2018–2021
9. Modelling and Simulation in Engineering (Hindawi) 2012–2018
10. Mathematical Problems in Engineering (Hindawi) 2013–2017

5.3 Referee for International Scientific Journals

(in parentheses, impact factor of the Journal)

1. Mathematical Reviews AMS
2. Applied Mechanics Reviews ASME (10.614)
3. International Journal of Engineering Science (7.626)
4. Acta Biomaterialia (7.502)
5. Materials Research Letters (7.398)
6. Composites Part B Engineering (6.792)
7. Computer Methods in Applied Mechanics and Engineering (6.756)
8. Composites Part A Applied Science and Manufacturing (6.689)
9. International Journal of Plasticity (6.662)

10. Journal of Materials Research and Technology (5.289)
11. Composite Structures (5.169)
12. Journal of the Mechanics and Physics of Solids (4.979)
13. Scientific Reports (4.576)
14. Journal of the Royal Society Interface (4.251)
15. International Journal of Impact Engineering (4.122)
16. Computational Mechanics (4.1)
17. Acta Geotechnica (4.087)
18. Computers & Structures (3.9)
19. Eye & Vision (3.883)
20. Computer Methods and Programs in Biomedicine (3.836)
21. Engineering Structures (3.775)
22. Investigative Ophthalmology & Visual Science (3.659)
23. Journal of the Mechanical Behavior of Biomedical Materials (3.622)
24. Journal of Fluid mechanics (3.616)
25. European Journal of Mechanics A-Solids (3.59)
26. Journal of Structural Biology (3.529)
27. Journal of Computational Physics (3.514)
28. Engineering Fracture Mechanics (3.433)
29. Annals of Biomedical Engineering (3.378)
30. Mechanics of Materials (3.331)
31. International Journal of Solids and Structures (3.267)
32. PLOS ONE (3.227)
33. Engineering with Computers (3.211)
34. Theoretical and applied Fracture Mechanics (3.204)
35. International Journal for Numerical Methods in Engineering (3.169)
36. Experimental Eye Research (3.135)
37. Journal of Refractive Surgery (3.125)
38. Ophthalmic and Physiological Optics (3.106)
39. Applied Mathematics Letters (3.092)
40. International Journal of Fracture (3.046)
41. International Journal for Numerical and Analytical Methods in Geomechanics (2.957)
42. Computerized Medical Imaging and Graphics (2.937)

43. Sensors and Actuators A Physical (2.923)
44. Biomechanics and Modeling in Mechanobiology (2.915)
45. Journal of Physics D Applied Physics (2.902)
46. Journal of Cataract and Refractive Surgery (2.875)
47. Soil Dynamics and Earthquake Engineering (2.862)
48. Computers Mathematics with Applications (2.855)
49. Proceedings of the Royal Society A Mathematical Physical and Engineering Sciences (2.83)
50. Computational Materials Science (2.801)
51. Journal of Applied Mechanics-Transactions of the ASME (2.793)
52. Mechanics of Advanced Materials and Structures (2.748)
53. Journal of Biomechanics (2.733)
54. Applied Mathematics and Computation (2.709)
55. Frontiers in Materials (2.705)
56. Frontiers in Physics (2.638)
57. Computational Particle Mechanics (2.54)
58. Biocybernetics and Biomedical Engineering (2.429)
59. International Journal of Non-Linear Mechanics (2.353)
60. Translational Vision Science & Technology (2.305)
61. International Journal for Numerical Methods in Biomedical Engineering (2.251)
62. Journal of Optics (2.207)
63. Journal of Nonlinear Science (2.199)
64. Meccanica (2.183)
65. Infrared Physics & Technology (2.182)
66. Journal of Biomechanical Engineering Transactions of the ASME (2.142)
67. Journal of Applied Physics (2.138)
68. Acta Mechanica (2.133)
69. Medical Engineering & Physics (2.107)
70. Modelling and Simulation in Materials Science and Engineering (2.097)
71. Mechanics Research Communications (2.054)
72. Journal of Elasticity (1.971)
73. Continuum Mechanics and Thermodynamics (1.94)
74. Journal of Micromechanics and Microengineering (1.882)
75. Computational and Mathematical Methods in Medicine (1.793)

76. Journal of Ophthalmology (1.784)
77. Computer Methods in Biomechanics and Biomedical Engineering (1.744)
78. ZAMP - Zeitschrift für Angewandte Mathematik und Physik (1.735)
79. Optometry and Vision Science (1.805)
80. Journal of Healthcare Engineering (1.802)
81. Journal of Optics A – Pure and Applied Optics (1.652)
82. Medical Principles and Practice (1.648)
83. Mathematical Biosciences (1.641)
84. Journal of Geophysics and Engineering (1.615)
85. Shock and Vibration (1.552)
86. Comptes Rendus de Mécanique (1.509)
87. Mathematical Medicine and Biology – A Journal of the IMA (1.496)
88. Computers and Concrete (1.42)
89. Applied Bionics and Biomechanics (1.37)
90. Archives of Mechanics (1.322)
91. Engineering Computations (1.315)
92. Journal of Mechanics of Materials and Structures (1.225)
93. Journal of Engineering Materials and Technology Transactions of the ASME (1.225)
94. Journal of Engineering Mathematics (1.214)
95. Soft Materials (1.177)
96. CMES – Computer Modeling in Engineering and Sciences (0.805)
97. Sensor Letters (0.58)
98. ZAMM - Zeitschrift für Angewandte Mathematik und Mechanik (0.433)
99. Advanced Modeling and Simulation in Engineering Sciences (–)
100. Communications in Applied and Industrial Mathematics (–)
101. Frontiers in Mechanical Engineering (–)
102. International Journal of Computer and Electrical Engineering (–)
103. Journal for Modelling and Artificial Intelligence in Ophthalmology (–)
104. Mechanics of Soft Materials (–)

5.4 Reviewer or Scientific Advisor of International Research Projects

1. **H2020-ERC Consolidator Grant**, Project Evaluator (2021)
2. **H2020-ERC Starting Grant**, Project Evaluator (2021)
3. **H2020-FET OPEN RIA**, Project Evaluator (2019-2020)
4. Scientific Advisor, Project OBERON (Opto-Biomechanical Eye Research Network) MSCA-ITN-ETN European Training Networks (2021–2024)
5. **Swedish Research Council**, Review Panel Member for Mechanical Engineering (2014, 2021)
6. Reviewer, EPSRC Centres for Mathematical Science in Healthcare **United Kingdom** (2018)
7. Reviewer, Natural Sciences and Engineering Research Council **Canada** (2016, 2017)
8. Reviewer, National Science Foundation **Israel** (2017)
9. Reviewer, National Science Foundation **Luxemburg** (2016)
10. Reviewer, National Science Foundation **Poland** (2014, 2015)
11. Reviewer, National Science Foundation **Georgia** (2012)
12. Reviewer, National Science Foundation **Switzerland** (2009, 2010, 2019)
13. Reviewer, National Science Foundation **USA** (2009)

5.5 Scientific Committee of International Research Centers

1. Pôle de Mécanique, Institut Polytechnique de Paris **France** (2020–)
2. International Strategic Advisory Board of the NExT project, Nantes **France** (2020–)
3. EPSRC Centre for Mathematical Science in Healthcare, Glasgow **United Kingdom** (2018)
4. Research Training Group “Mineral-bonded composites for enhanced structural impact safety” (GRK 2250), Dresden **Germany** (2016-2020)

5.6 Workshop and Conference Organizer

1. IUTAM-Symposium on *Computational Fracture Mechanics in Multifield Problems*, with Michael Ortiz and Kerstin Weinberg. November 2-6, 2020, Bad Honnef, Germany.
2. First joint GIMC-GACM Workshop on *Common research interests in computational mechanics* Italian Group of Computational Mechanics, AIMETA and German Association of Computational Mechanics. February 28 - March 1st, 2018, Udine, Italy.
3. IUTAM-Symposium on *Innovative numerical approaches for materials and structures in multi-field and multi-scale problems*, with Kerstin Weinberg. September 1-4, 2014, Burg Schnellenberg, Germany.

5.7 Conference Minisymposium and Session Organizer

1. *Theory of fracture, crack propagation criteria, and crack tracking algorithms* (with Michael Ortiz), Special Session of the Ecomas Thematic Conference on Computational Plasticity, COMPLAS 2022, September 5–7 2022, Barcelona, Spain.
2. *Variational Methods in Modelling for Multi-Physics Problems* (with Laurent Stainier and Kerstin Weinberg), XIV World Congress on Computational Mechanics WCCM-APCOM 2022, July 31–August 5 2022, Yokohama, Japan. **Converted to online 2022.**
3. *Variational Methods in Modelling for Multi-Physics Problems* (with Laurent Stainier and Kerstin Weinberg), 11th European Solid Mechanics Conference ESMC 2022, July 4–8 2022, Galway, Ireland.
4. *S18 Theoretical and computational mechanics of materials* (with Ludovic Noels), 18th European Mechanics of materials Conference EMMC18 2022, April 4-6 2022, Oxford, UK.
5. *Damage modelling of concrete structures under extreme loading conditions* (with Michael Kaliske, Michael Ortiz, and Bert Sluijs), Special Session of the Ecomas Thematic Conference on Computational Plasticity, COMPLAS 2021, September 7–10 2021, Barcelona, Spain.
6. *Novel Computational Methods in multi-field modeling of material failure - A Minisymposium on the occasion of Michael Ortiz 65th birthday* (with Laurent Stainier and Kerstin Weinberg), XIII World Congress on Computational Mechanics and ECCOMAS Congress, WCCM & ECCOMAS 2020, July 22–27 2018, Paris, France. **Postponed to online 2021.**
7. *Ocular Biomechanics Track* (with Miguel Angel Ariza Gracia), 26th Congress of the European Society of Biomechanics, ESB2020, July 12–15 2020, Milano, Italy. **Postponed to online 2021.**
8. *Theory of fracture, crack propagation criteria, and crack tracking algorithms* (with Michael Ortiz), Special Session of the Ecomas Thematic Conference on Computational Plasticity, COMPLAS 2019, September 3–5 2019, Barcelona, Spain.
9. *Modelling natural and engineered materials with internal microstructure* (with Marcello Vasta and Maria Laura De Bellis), International Conference on Nonlinear Solid Mechanics, ICOnSoM 2019, June 16–19 2019, Roma, Italy.
10. *Crack tracking algorithms, theory of fracture and crack propagation criteria* (with Michael Ortiz), International Conference on Computational Modeling of Fracture and Failure, CFRAC 2019, June 12–14 2019, Braunschweig, Germany.
11. *Innovative numerical approaches for multi-physics problems* (with Laurent Stainier and Kerstin Weinberg), XII World Congress on Computational Mechanics, WCCM 2018, July 22–27 2018, New York City, USA.
12. *Variational methods in constitutive modelling of multi-physics problems* (with Laurent Stainier and Kerstin Weinberg), European Conference in Solid Mechanics, ESMC 2018, July 2–6 2018, Bologna, Italy.
13. *Computational modelling of damage and fracture* (with Leong Hien Poh, R. Peerlings, and Milan Jirasek), 6th European Conference on Computational Mechanics (Solids, Structures and Coupled Problems) (ECCM 6) and 7th European Conference on Computational Fluid Dynamics (ECFD 7), June 11–15, 2018, Glasgow, UK.
14. *Biomechanics of the eye* (with Rodolfo Repetto, Peter Stewart, and Jennifer H. Tweedy), 6th European Conference on Computational Mechanics (Solids, Structures and Coupled Problems) (ECCM 6) and 7th European Conference on Computational Fluid Dynamics (ECFD 7), June 11–15, 2018, Glasgow, UK.

15. *Crack tracking algorithms, theory of fracture and crack propagation criteria* (with Michael Ortiz), International Conference on Computational Modeling of Fracture and Failure, CFRAC 2017, June 14–16 2017, Nantes, France.
16. *Innovative numerical approaches for multi-physics problems* (with Laurent Stainier and Kerstin Weinberg), XI World Congress on Computational Mechanics, WCCM 2016, July 24–29 2016, Seoul, South Korea.
17. *Innovative numerical approaches for multi-physics problems* (with Laurent Stainier and Kerstin Weinberg), 7th World Congress on Computational Mechanics, ECCOMAS 2016, June 5–10 2016, Crete Island, Greece.
18. *Crack tracking algorithms, theory of fracture and crack propagation criteria* (with Michael Ortiz), International Conference on Computational Modeling of Fracture and Failure, CFRAC 2015, June 3–5 2015, Paris, France.
19. *Structural Mechanics Session* (with Mikhail Istkov and Josef Eberhardsteiner), 87-th Annual Meeting of the International Association of Applied Mathematics and Mechanics, GAMM 2015, March 23–27 2015, Lecce, Italy.
20. *Innovative numerical approaches for multi-physics problems* (with Laurent Stainier and Kerstin Weinberg), XI World Congress on Computational Mechanics, WCCM 2014, July 16–21 2014, Barcelona, Spain.
21. *Biomechanics of the eye* (with Rafael Grytz, Vicky Nguyen, Jonathan Vande Geest, Rouzbeh Amini), Seventh World Congress of Biomechanics, WCB 2014, July 6–11 2014, Boston MA, USA.
22. *Present and future of crack tracking algorithms* (with Michael Ortiz), International Conference on Computational Modeling of Fracture and Failure, CFRAC 2013, July 5–7 2013, Prague, Check Republic.
23. *Innovative numerical approaches for multi-physics problems* (with Laurent Stainier and Kerstin Weinberg), 6th European Congress on Computational Methods in Applied Science and Engineering, ECCOMAS 2012, September 10–14 2012, Vienna, Austria.
24. *Theoretical and numerical modeling of the functions of the eye* (with Peter Pinsky), EuroMech Solid Mechanics Conference, ESMC 2012, July 9–13 2012, Graz, Austria.
25. *Eye biomechanics: experiments, theoretical and numerical modeling* (with Maurizio Angelillo and Tommaso Rossi, MD), XX Congresso dell’Associazione Italiana di Meccanica Teorica ed Applicata, AIMETA 2011, September 11–13 2011, Bologna, Italy.
26. *Present and future of crack tracking algorithms* (with Michael Ortiz), International Conference on Computational Modeling of Fracture and Failure, CFRAC 2011, July 6–9 2011, Barcelona, Spain.
27. *Computational Methods in Virtual and Computer Planned Surgery* (with Suvranu De), World Congress in Computational Mechanics, WCCM 8 & European Congress on Computational Methods in Applied Science and Engineering, ECCOMAS 2008, June 29–July 4 2008, Venezia, Italy.

5.8 Scientific and Organization Committee Member in International Conferences

Scientific Committee

1. *XVII International Conference on Computational Plasticity COMPLAS 2023*, September 7–17 2023, Barcelona, Spain.
2. *X International Conference on Computational Methods for Coupled Problems in Science and Engineering (COUPLED PROBLEMS)*, 5–7 June 2023, Chania, Crete, Greece.

3. *XVI International Conference on Computational Plasticity COMPLAS 2021*, September 7–10 2021, Barcelona, Spain.
4. *International Workshop on The evolving nonlinear continuum panorama*, July 4–8 2021, Castro Urdiales, Spain.
5. *X International Conference of Croatian Society of Mechanics ICCSM-2021*, September 26–29, 2021, Pula, Croatia.
6. *XV International Conference on Computational Plasticity COMPLAS 2019*, September 3–5 2019, Barcelona, Spain.
7. *International Workshop on The Multiscale Spectrum of Constitutive Modeling in Solid Mechanics*, July 1–5 2019, Castro Urdiales, Spain.
8. *ICoNSoM2019 International Conference on Nonlinear Solid Mechanics*, June 16–19, 2019, Roma, Italy.
9. *X International Conference on Fracture of Concrete and Concrete Structures FraMCoS-10*, June 24–26, 2019, Bayonne, France.
10. *VI International Conference on Computational Modelling of Fracture and Failure of Materials and Structures CFRAC-2019*, June 12–14 2019, Braunschweig, Germany.
11. *XI Conference in Mechanics of Time-Dependent Materials MTDM-2018*, September 4–7 2018, Milano, Italy.
12. *6th European Conference on Computational Mechanics and 7th European Conference on Computational Fluid-Dynamics ECCM-ECFD*, June 11–15 2018, Glasgow, UK.
13. *XVI European Mechanics of Materials Conference EMMC-16*, March 26–28 2018, Nantes, France.
14. *XIV International Conference on Computational Plasticity COMPLAS*, September 5–7 2017, Barcelona, Spain.
15. *Workshop Multiscale Computational Analysis of Complex Materials*, August 29–31, 2017, Copenhagen, Denmark.
16. *III International Conference on Modelling of nonlinear continua*, June 26–30 2017, Castro Urdiales, Spain.
17. *V International Conference on Computational Modelling of Fracture and Failure of Materials and Structures CFRAC-2017*, June 14–16 2017, Nantes, France.
18. *XV European Mechanics of Materials Conference EMMC-15*, September 7–9 2016, Brussels, Belgium.
19. *IX International Conference on Fracture of Concrete and Concrete Structures FraMCoS-9*, May 29–June 1, 2016, Berkeley CA, USA.
20. *VIII International Conference of Croatian Society of Mechanics ICCSM-2015*, September 29–October 2, 2015, Opatija, Croatia.
21. *IV International Conference on Computational Modelling of Fracture and Failure of Materials and Structures CFRAC-2015*, June 3–5 2015, Cachan, France.
22. *V International Congress on Computational Mechanics and Simulation ICCMS-2014*, December 10–13 2014, Chennai, India.
23. *XIV European Mechanics of Materials Conference EMMC-14*, July 27–29 2014, Göteborg, Sweden.

24. *IX Conference in Mechanics of Time-Dependent Materials* MTDM-2014, May 27–30 2014, Montreal, Canada.
25. *III International Conference on Computational Modelling of Fracture and Failure of Materials and Structures* CFRAC-2013, June 5–7 2013, Prague, Czech Republic.
26. *IV International Congress on Computational Mechanics and Simulation* ICCMS-2012, December 9–12 2012, Hyderabad, India.
27. *II International Conference on Computational Modelling of Fracture and Failure of Materials and Structures* CFRAC-2011, June 6–8 2011, Barcelona, Spain.

Organization Committee

1. *25th International Congress of Theoretical and Applied Mechanics*, 25th ICTAM, August 23–28 2020, Organization Committee, Milano, Italy.
2. *26th Congress of the European Society of Biomechanics*, ESB2020, July 12–15 2020, Organization Committee, Milano, Italy.
3. *11th International Conference on Mechanics of Time Dependent Materials*, MTDM 2018, September 4–7 2018, Organization Committee, Milano, Italy.
4. *Eccomas Thematic Conference in Extended Discretization Methods*, X-DMS 2015, September 9–11 2015, Organization Committee, Ferrara, Italy.
5. *International Symposium on Defect and Material Mechanics*, ISDDM09, July 6–9 2009, Trento, Italy.
6. *World Congress in Computational Mechanics*, WCCM 8 & Eccomas 2008, June 29–July 4 2008, Venezia, Italy.
7. *International Conference in CAE and Computational Technologies for Industry*, TCN CAE 2005, 2–8 October 2005, Lecce, Italy.

6 Research Activity

Research Interests: Broad field of computational mechanics. Constitutive modelling of materials: materials with internal structure, metamaterials, biomaterials. Biomechanics of soft tissues. Frictional contact mechanics. Cohesive, energy and variational approaches to fracture mechanics. Space and time discretization methods. Mesh-adaption algorithms for finite elements.

	Items	Total Citx	Without Self Citx	H-Index	I10-Index	Average Citx/Item
ISI-WOS	98	3,675	3,330	29	53	36.4
Scopus	108	4,170	3,554	31	62	37.1
Google Scholar	209	6,222	-	37	65	29.5

Table 1: Bibliographic metrics in popular scientific databases, Mar 2022. Citx = citations

Honorary presentations (denoted with H), seminar presentation (denoted with S), international conference presentations (denoted with P) and Italian conference presentations (denoted with N), listed in the following.

Specific Research Topics

1. Hydraulic fracture in non conventional reservoirs, numerical modeling and permeability evolution predictions.
2. Metaconcrete: a new concept of concrete with enhancing performance aggregates.
3. Biomechanics of active biotissues: constitutive models for the electro-mechanics of cardiac excitation; polymeric heart valve prosthesis theoretical development, numerical modeling, and prototype design.
4. Biomechanics of fiber reinforced tissues: constitutive models for biological tissues with distributed orientation of the reinforcing collagen fibers.
5. Meshfree methods: approximation approaches for transport and fracture propagation problems.
6. Eigenerosion: modeling quasistatic fracture propagation with provably convergent energy based criteria.
7. Complex materials: field induced phase transition in nematic liquid crystals.
8. Biomechanics of arterial walls: modeling fracture in anisotropic biological tissues and application to plaque rupture in diseased human arteries.
9. Biomechanics of the cornea: modeling refractive surgery procedures, linking mechanics and optics in normal and pathological conditions, characterization of the mechanical properties of porcine corneas and validation of numerical models of the cornea.
10. Constitutive modeling of elastomeric materials: mechanical behavior of fluidic microvalves and UV radiation sensitive materials for ophthalmologic applications
11. Fracture in structures: extension of standard cohesive approaches to fracture in thin shells and in anisotropic plates.
12. Constitutive modeling of soils: Cam-clay plasticity and multiscale brittle damage.
13. Dynamic fracture: sensitivity to the dynamic load speed and duration on crash processes, and on the propagation of fracture in delamination in composites.

14. Contact mechanics: non-smooth frictionless and frictional contact algorithms and application to dynamical problems of fracture and fragmentation in biomechanics and soil mechanics.
15. Crack tracking: mesh adaptivity algorithms for finite element discretized three-dimensional solids.
16. Cohesive models of fracture in finite deformations and application to failure under dynamic loading: modeling brittle and fatigue failure.
17. Geomechanics: analytical solutions for the identification of the in situ stress state, numerical methods for the identification of soil material properties; numerical solutions for free seepage in porous materials.
18. Variational formulation and numerical solutions of the elastic-plastic problem.
19. Modeling the behavior of no-tension or pressure sensitive materials under cyclic loading; and the behavior of reinforced concrete under the action of fire.

6.1 Honorary Lectures in International Conferences

Plenary, semi-plenary and keynote lectures in International Conferences

1. **Invited Lecture:** *Computational Models and Experimental methods for the Human Cornea*, ECCOMAS 2022, Oslo, Norway, June 5–9 2022.
2. **Key-note Lecture:** *Geometrically-exact time-integration mesh-free schemes for advection-diffusion problems derived from optimal transportation theory*, CSF Workshop on Generalized Barycentric Coordinates in Computer Graphics and Computational Mechanics, Monte Verità, Ascona, Switzerland, May 20–23 2022.
3. **Key-Note Lecture** *Metaconcrete: Engineered aggregates for enhanced dynamic performance*, EuroMech Colloquium 626 2021, Keele, United Kingdom (online), September 6–8, 2021.
4. **Plenary Lecture:** *Microstructured porous material models for damage induced by fluids in compressed rocks*, International Conference on Computational Methods for Coupled Problems in Science and Engineering, Chia Laguna, Italy (online conference), June 13–16, 2021.
5. **Plenary Lecture:** *A microstructured brittle damage model applied to simulations of laboratory tests and full field hydraulic problems in rocks*, ASCE Engineering Mechanics Institute - International Conference of the Engineering Mechanics Institute, Durham, United Kingdom (online conference), March 22–24, 2021.
6. **Plenary Lecture:** *Geometrically-exact time-integration mesh-free schemes for advection-diffusion problems derived from optimal transportation theory*, XXIV Congresso Italiano di Meccanica Teorica ed Applicata, Roma, Italy, September 13–15 2019.
7. **Plenary Lecture:** *Geometrically-exact time-integration mesh-free schemes for advection-diffusion problems derived from optimal transportation theory*, ECCOMAS Thematic Conference on eXtended Discretization MethodS X-DEM 2019, Lugano, Switzerland, July 3–5 2019.
8. **Plenary Lecture:** *Modelling the biomechanics of the human cornea*, French National Congress on Computational Mechanics, Giens, France, May 13–17 2019.
9. **Plenary Lecture:** *On the relevance of the collagen architecture on the biomechanics of the human cornea*, XII Argentine Congress on Computational Mechanics, San Miguel de Tucuman, Argentina, November 6–9 2018.
10. **Key-Note Lecture:** *A multiscale model of brittle damage extended to porous materials*, 55th Annual Technical meeting of Society of Engineering Science (SES 2018), Madrid, Spain, October 10–12, 2018.
11. **Invited Lecture:** *A Class of Electro-Active Anisotropic Material Models*, Current Trends and Open Problems in Computational Solid Mechanics Leibniz Universität Hannover, Germany, October 8–9, 2018.
12. **Plenary Lecture:** *Geometrically-exact time-integration mesh-free schemes for advection-diffusion problems derived from optimal transportation theory*, European Conference in Computational Mechanics & European Conference in Computational Fluid Dynamics (ECCM & ECFD 2018), Glasgow, UK, June 11–15 2018.
13. **Plenary Lecture:** *Modelling the collagen architecture of the cornea*, III International Conference on Biomedical Technology (ICBT 2017), Hanover, Germany, November 6–8 2017.
14. **Plenary Lecture:** *Biomechanics of the anterior segment of the eye*, 14th International Conference on Computational Plasticity (COMPLAS 2017), Barcelona, Spain, September 5–7 2017.

15. **Key-Note Lecture:** *A porous brittle damage material model with distributed frictional-cohesive faults*, Engineering Mechanics Institute International Conference, Metz, France, October 24-27, 2016.
16. **Key-Note Lecture:** *A micro-structured multi-scale brittle damage model of porous material*, Workshop MIST (Laboratory of Micromechanics and Integrity des Structure) Friction, Fracture, Failure [Microstructural Effects], Montpellier, France, October 12-15, 2015.
17. **Key-Note Lecture:** *Elastic and brittle behavior of metaconcrete*, 8-th International Congress of Croatian Society of Mechanics, Opatija, Croatia, September 29–October 3 2015.
18. **Plenary Lecture:** *Metaconcrete: designed aggregates to enhance dynamic performance*, International Conference on Computational Modelling of Concrete and Concrete Structures (EURO-C 2014), St. Anton am Arlberg, Austria, March 24–27 2014.
19. **Plenary Lecture:** *Convergent Erosion Schemes for Three-Dimensional Fracture and Fragmentation*, Third Thematic Ecomas Conference in Computational Fracture Mechanics, CFRAC 2013, Prague, Czech Republic, June 5–7, 2013.
20. **Key-Note Lecture:** *Modeling Fracture within Local Max-Ent Meshfree Approximation Schemes*, International Congress on Computational Mechanics and Simulation, Hyderabad, India, December 10-12, 2012.
21. **Key-Note Lecture:** *Eigenerosion Approaches to Brittle Fracture*, International Workshop on “Evolution problems in damage, plasticity and fracture: mathematical models and numerical analysis”, Udine, September 19-21, 2012.
22. **Semi-Plenary Lecture:** *Eigenerosion Approaches to Brittle Fracture*, European Congress in Computational methods in Applied Sciences and Engineering, ECCOMAS 2012, Vienna, Austria, September 10–14, 2012.
23. **Plenary Lecture:** *Computational Biomechanics of the Human Cornea*, EuroMech Colloquium Number 518 *Biomechanics of the Eye*, London, UK, July 26–28, 2010.
24. **Key-note Lecture:** *Numerical simulations of arterial plaque ruptures*, XI Esaform2008 Conference on Material Forming, Lyon, France, April 23–25, 2008.
25. **Key-note Lecture:** *Blast induced fragmentation and wave propagation in rocks*, VII World Congress in Computational Mechanics, WCCM 7, Los Angeles, CA, July 16–21, 2006.
26. **Key-note Lecture:** *A model of distributed faulting in confined brittle materials*, XV US National Congress in Theoretical and Applied Mechanics, USNCTAM15, Boulder, CO, June 25–30, 2006.
27. **Key-note Lecture:** *Numerical simulations of monolithic elastomeric microvalves*, TCN–CAE Conference, Forte Village, Sardinia, October 2–5, 2003.

6.2 Invited Seminars

Seminars presented in International and National scientific institutions

In evidence: **Caltech, Harvard, Stanford, Oxford, Postech, EPFL, UCSD, UCLA, Paris VI, MOX Polimi, Stockholm, Glasgow.**

1. *Modelling fracture with eigenerosion versus phase-field*, **University of Erlangen**, Germany, Online seminar, June 10, 2021.
2. *Recent studies on the modelling of the human cornea*, **University of Glasgow**, UK, Online seminar, October 2, 2020.

3. *Modelling and simulations of hydraulic fracking processes*, Dipartimento di Strutture, University of **Napoli Federico II**, May 8, 2019.
4. *Theoretical and experimental analysis of metaconcrete, using engineered aggregates for enhanced dynamic performance*, University of **Houston**, TX USA, February 26, 2019.
5. *On the relevance of the collagen architecture and of the external shape on the biomechanics of the human cornea*, **École Polytechnique, Palaiseau**, France, February 7, 2019.
6. *Modelling Fracture within Local Max-Ent Meshfree Approximation Schemes*, University of **Tucuman**, Argentina, November 4, 2018.
7. *Metaconcrete: Engineered Aggregates for Enhanced Dynamic Performance*, University of **Buenos Aires**, Argentina, November 2, 2018.
8. *Metaconcrete: Engineered Aggregates for Enhanced Dynamic Performance*, University of **Brescia**, May 18, 2017.
9. *Metaconcrete: Engineered Aggregates for Enhanced Dynamic Performance*, University of **Salerno**, May 12, 2017.
10. *Understanding and Modeling the Biomechanics of the Human Cornea*, University of **Napoli Federico II**, May 11, 2017.
11. *A porous brittle damage material model with distributed frictional-cohesive faults*, MOX, Politecnico di Milano, November 11, 2016.
12. *Metaconcrete: Engineered Aggregates for Enhanced Dynamic Performance*, Solid Mechanics and Materials Engineering, Oxford University, **Oxford**, UK, March 8, 2016.
13. *On Electro-Active Anisotropic Material Models for the Behavior of the Large Intestine*, Hopkins Extreme Materials Institute, Johns Hopkins University **Baltimore**, USA, February 22, 2016.
14. *Metaconcrete: Engineered Aggregates for Enhanced Dynamic Performance*, Engineering Department, University Roma III, **Roma**, February 3, 2016.
15. *Metaconcrete: Engineered Aggregates for Enhanced Dynamic Performance*, Civil and Environmental Engineering Department, Politecnico, **Milano**, October 28, 2015.
16. *Understanding and Modeling the Biomechanics of the Human Cornea*, School of Mechanical and Material Engineering, University College Dublin, **Dublin**, Ireland, May 27, 2015.
17. *On Electro-Active Anisotropic Material Models for the Behavior of the Large Intestine* Computational Mechanics & Advanced Materials Group - DICA, Università degli Studi, **Pavia**, January 28, 2015.
18. *Geometry and material models for the biomechanics of the human cornea*, within the Webinar "A Year in Visual Optics: Understanding the Anterior Human Eye", hosted by the Optical Society of America Technical Group "Applications of Visual Science", **online Webinar**, January 15, 2015.
19. *Understanding and Modeling the Biomechanics of the Human Cornea*, Solid Mechanics Department, Royal Institute of Technology, **Stockholm**, Sweden, September 17, 2014.
20. *The biomechanics of the human cornea: theoretical modeling, experiments and numerical simulations*, Robotics Laboratory, **Postech**, Pohang University of Science and Technology, South Korea, June 26, 2014.
21. *Numerical modeling of physics and engineering problems*, Università degli Studi di **Brescia**, February 24, 2014.

22. *Modeling the biomechanics of the human cornea*, GalCit Colloquium, **Caltech**, Pasadena CA, April 19, 2013.
23. *A peek in metaconcrete numerical results*, **Caltech**, Pasadena CA, Aerospace Graduate Laboratories, April 16, 2013.
24. *The biomechanics of the human cornea: new advances and new issues*, Department of Mechanical and Aerospace Engineering, University of California **Los Angeles**, CA, April 3, 2013.
25. *New studies and new issues concerning the human cornea*, Department of Mechanical and Aerospace Engineering, University of California **San Diego**, CA, March 4, 2013.
26. *Numerical models for the nonlinear behavior of materials and structures*, Centro di Ricerca General Electrics Oil & Gas, **Firenze**, November 16, 2012.
27. *New studies and new issues concerning the human cornea*, School of Mathematics & Statistic, **Glasgow**, UK, November 8, 2012.
28. *Modelling Fracture within Local Max-Ent Meshfree Approximation Schemes*, MOX, Politecnico di **Milano**, June 8, 2012.
29. *Modelling Fracture within Local Max-Ent Meshfree Approximation Schemes*, Centre for Geotechnical and Materials Modelling, University of **Newcastle**, Australia, May 24, 2012.
30. *Modelling Fracture within Local Max-Ent Meshfree Approximation Schemes*, Institut für Mechanik und Regelungstechnik, Universität **Siegen**, Germany, May 8, 2012.
31. *New studies and new issues concerning the human cornea*, Aerospace Graduate Laboratories, **Caltech**, Pasadena CA, March 16 & April 6, 2012.
32. *Cohesive Models of Fracture and 3D Fragmentation Procedures*, Università “Gabriele d’Annunzio” di **Pescara-Chieti**, Chieti, February 15, 2012.
33. *Fiber distributed hyperelastic modeling of biological tissues*, Dipartimento di Ingegneria Strutturale, **Politecnico**, Milano, February 13, 2012.
34. *Eigenerosion Approaches to Brittle Fracture*, Graduate Aerospace Laboratories, **Caltech**, Pasadena CA, August 19, 2011.
35. *Eigenerosion Approaches to Brittle Fracture*, School of Engineering and Applied Science, **Harvard**, Cambridge MA, April 28, 2011.
36. *Fiber distributed hyperelastic modeling of biological tissues*, Dipartimento di Ingegneria Civile, Università di **Salerno**, Fisciano, December 9, 2010.
37. *A numerical approach to field-induced phase transitions in nematic liquid crystals*, Laboratoire de simulation en mécanique des solides, Ecole Polytechnique Fédérale de **Lausanne**, Switzerland, June 1, 2010.
38. *Modeling the behavior of fiber reinforced biological tissues*, Graduate Aeronautical Laboratories, **Caltech**, Pasadena CA, April 2 and April 9, 2010.
39. *Three-dimensional modeling and computational analysis of the human cornea*, Dipartimento di Ingegneria Civile, Università di **Pisa**, February 18, 2010.
40. *Three-dimensional modeling and computational analysis of the human cornea*, Institute of Computational Science, Università della Svizzera Italiana, **Lugano**, Switzerland, December 11, 2009.
41. *Cohesive theories of fracture in numerical modeling of material failure*, Institut für Mechanik und Regelungstechnik, Universität **Siegen**, Germany, June 19, 2009.

42. *A numerical approach to field-induced phase transitions in nematic liquid crystals*, Dipartimento de Matematica Applicada III, Universitat Politecnica de Catalunya, **Barcelona**, Spain, May 15, 2009.
43. *Numerical applications of time-discretized variational formulations of nonsmooth contact*, Institut für Analysis, Fachbereich Mathematik, Technische Universität **Dresden**, Germany, April 30, 2009.
44. *Cohesive models of fracture and 3D fragmentation procedures*, Fakultät Bauingenieurwesen, Technische Universität **Dresden**, Germany, April 27, 2009.
45. *Three-dimensional modeling and computational analysis of the human cornea*, Facoltà di Ingegneria Biomedica, Università Campus Bio-Medico, **Roma**, April 23, 2009.
46. *Cohesive theories of fracture in numerical modeling of material failure*, Dipartimento di Ingegneria Civile e Ambientale, Università degli Studi di **Catania**, November 27, 2008.
47. *A model of distributed faulting and numerical applications*, Laboratoire 3S-R, Institut National Polytechnique & Université Joseph Fourier, **Grenoble**, September 11, 2008.
48. *Computational modeling of the mechanical and optical behavior of human corneas*, Institut Jean Le Rond d'Alembert, CNRS & Université Pierre et Marie Curie, **Paris**, May 23, 2008.
49. *A numerical approach to field-induced phase transitions in nematic liquid crystals*, Graduate Aeronautical Laboratories, **Caltech**, Pasadena CA, April 11, 2008.
50. *Three-dimensional modeling and computational analysis of the human cornea*, Mechanics and Computation Group, **Stanford** University, Palo Alto CA, April 3, 2008.
51. *A numerical model of atherosclerotic lesions in human arteries*, School of Engineering, University of **Durham**, UK, August 30, 2007.
52. *Three-dimensional modeling and computational analysis of the human cornea*, Dipartimento di Ingegneria Civile, Università di **Salerno**, Fisciano, June 29, 2007.
53. *Variational cohesive fracture models and three-dimensional crack tracking*, Dipartimento di Ingegneria, Università di **Ferrara**, April 16, 2007.
54. *Cohesive models of fracture and 3D fragmentation procedures*, Laboratoire 3S, Institut National Polytechnique & Université Joseph Fourier, **Grenoble**, March 29, 2007.
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