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Biographical sketch and career

- Born in Novara, Italy, 10/12/1977.
- 17/12/2001: **Master's degree** in Civil Engineering at Politecnico di Torino, 110/110 cum laude, average mark 29.2/30, 23 exams over 30 with full marks, of which 13 cum laude.
- 06/05/2005: **PhD in Structural Engineering** (XVII Cycle) at Politecnico di Torino, recipient of a scholarship from the Italian Ministry of Education, University and Research.
- From 01/01/2005 to 31/7/2007: **Post-doctoral research fellow** in Structural Mechanics in the Department of Structural and Geotechnical Engineering, Politecnico di Torino.
- From 01/08/2007 to 30/10/2013: **Assistant Professor** in Structural Mechanics in the Department of Structural and Geotechnical Engineering, Politecnico di Torino, with tenure from 01/08/2010. Aggregate Professor of Structural Mechanics from 2011 to 2013.
- From 01/11/2013 to 27/12/2017: **Associate Professor** of Structural Mechanics at the IMT School for Advanced Studies Lucca, appointed by a direct call for the recruitment of principal investigators of ERC Starting Grants (Italian Law 04/11/2005, n. 230, art. 1, comma 9, modified by the Italian Law 30/12/2010, n. 240, art. 29, comma 7).
- 13/01/2014: **Italian Scientific Habilitation** for the position of Associate Professor in Structural Mechanics.
- 28/03/2017: **Italian Scientific Habilitation** for the position of Full Professor in Structural Mechanics.
- From 28/12/2017: **Full Professor** in Structural Mechanics at the IMT School for Advanced Studies Lucca.
- From April 2019: **co-founder** of the academic spin-off and innovative start-up TREE-TOWER S.R.L. (<http://www.tree-tower.eu/>) together with Dr. F. Biancalani (CEO; former PhD scholar of IMT in Management Science).

Other appointments and visiting periods

- From 01/02/2010 to 31/01/2011: **Alexander von Humboldt Research Fellow** at the Gottfried Wilhelm Leibniz Universität di Hannover, Germany, Institute of Continuum Mechanics.

- From 26/06/2009 to 03/07/2013: elected member of the **Executive Board** of the Italian Group of Fracture (2 consecutive appointments).
- From 10/09/2013 to 09/10/2013: **Visiting Professor** in Structural Mechanics in the research unit DYSCO (Dynamical Systems, Control and Optimization) of the IMT School for Advanced Studies Lucca, Italy.
- From 28/04/2014 to 31/05/2014: **Visiting Full Professor** at the Université Paris-EST, Laboratoire de Modélisation et Simulation Multi Echelle, Marne-La-Vallée, France.
- From 29/10/2014 to 31/12/2017: **Member of the Technical Committee** of the Task 13 "Performance and Reliability of Photovoltaic Systems" of the Photovoltaic Power Systems Programme of the International Energy Agency.
- From 14/09/2015 to 17/06/2016: **Adjunct Professor** for the course "Mechanics of Masonry Structures and Fracture Mechanics", 25 hours, 2nd year of the Master in Civil Engineering, University of Trento, Trento, Italy.
- From 01/10/2015 to 31/10/2015: **External research collaborator**, University of Trento, Department of Civil, Environmental and Mechanical Engineering, Trento, Italy.
- From 22/01/2016: **Member of the Executive Committee** of the Mechanics of Materials Group of the Italian Association of Theoretical and Applied Mechanics (AIMETA); Chairman of the Executive Committee since 09/2022.
- From 01/04/2016 to 30/04/2016: **External research collaborator**, University of Trento, Department of Civil, Environmental and Mechanical Engineering, Trento, Italy.
- From 28/09/2016 to 24/09/2017: **Adjunct Professor** for the course "Structural mechanics and structural design", 60 hours, 3rd year of the Bachelor in Chemical Engineering, University of Pisa, Pisa, Italy.
- From 01/06/2017 to 30/06/2017: **External research collaborator**, University of Trento, Department of Civil, Environmental and Mechanical Engineering, Trento, Italy.
- From 25/09/2017 to 21/09/2018: **Adjunct Professor** for the course "Structural mechanics and structural design", 60 hours, 3rd year of the Bachelor in Chemical Engineering, University of Pisa, Pisa, Italy.
- From 18/06/2018 to 17/07/2018: **Visiting Professor**, Department of Structural, Geotechnical and Building Engineering, Politecnico di Torino, Torino, Italy.
- From 01/09/2018: **Member of the International Advisory Board** of the Excellence Laboratory MANUTECH-SISE (Lyon-St Etienne, France) on Science and Engineering of Surfaces and Interfaces.
- From 27/02/2019: **Member of the Scientific and Technical Committee** of the Association ARTES4.0, for the management of the national competence center ARTES4.0 on Industry 4.0, supported by the Italian Ministry of Economic Development, and Coordinator of its Academic and Research Board (March 2021-February 2022, December 2023-August 2024).
- 2019: **Member of the Technical Committee** of the National Research Plan (MIUR) for the Area 12 - Green Technologies.
- From 11/05/2019 to 22/05/2019: GIAN (Global Initiative of Academic Network) **Visiting Professor** for the course "Computational Fracture Mechanics for Photovoltaic Reliability", 32 hours, Indian Institute of Technology Delhi, India.

- From 15/10/2019 to 14/11/2019: **External research collaborator**, University of Trento, Department of Civil, Environmental and Mechanical Engineering, Trento, Italy.
- From 1/10/2020 to 31/10/2020: **External research collaborator**, University of Trento, Department of Civil, Environmental and Mechanical Engineering, Trento, Italy.
- From 12/10/2021 to 11/11/2021: **External research collaborator**, University of Trento, Department of Civil, Environmental and Mechanical Engineering, Trento, Italy.
- 2022: **Visiting Professor** at the University of Girona, Spain. Five seminars delivered for the Master's series "Seminars on mechanics of materials and structures" of the European Master in "Science of Mechanics of Materials and Structures, academic course 2021/2022.
- From 19/9/2022 to 18/10/2022: **External research collaborator**, University of Trento, Department of Civil, Environmental and Mechanical Engineering, Trento, Italy.
- From 18/9/2023 to 17/10/2024: **External research collaborator**, University of Trento, Department of Civil, Environmental and Mechanical Engineering, Trento, Italy.
- 2019-2022 & 2022-2025: **Member of the Board of Directors** of LUCENSE SCaRL, <https://lucense.it>

Institutional responsibilities

- From 01/11/2013: **Director of the research unit** "MUSAM - Multi-scale Analysis of Materials", IMT School for Advanced Studies Lucca (<http://musam.imtlucca.it/>) and Director of the experimental laboratory MUSAM-Lab (<https://www.imtlucca.it/it/ricerca/laboratori/musam-lab>)
- From 12/2013 to 12/2015 and from 02/2017 to 10/2023: **elected member of the Academic Council**, IMT School for Advanced Studies Lucca.
- From 11/2023: **elected member of the Board of Directors**, IMT School for Advanced Studies Lucca.
- From 22/12/2015 to 31/10/2021: **Director's Delegate for Research**, IMT School for Advanced Studies Lucca.
- From 15/02/2016 to 31/10/2021: **member of the executive board** of the joint Office for Technology Transfer of Scuola Superiore Sant'Anna, Scuola Normale Superiore, Scuola IMT Alti Studi Lucca and Scuola Universitaria Superiore Pavia (JoTTO, Joint Technology Transfer Office, <http://www.jointto.it>).
- From 11/2022 to 10/2024: **Director's Delegate for Buildings, Spaces and Sustainability**, IMT School for Advanced Studies Lucca.
- From 15/03/2013 to 14/03/2016: **Member of the board** for the PhD in "Structural Engineering", Politecnico di Torino, A.Y.: 2013/2014 - Cycle: 29.
- From 01/11/2014 to 31/10/2017: **Member of the board** for the PhD in "Institutions, Markets and Technologies", Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 30.
- From 01/11/2014 to 31/10/2017: **Director of the PhD curriculum** in "Computational Mechanics" within the PhD "Institutions, Markets and Technologies", Scuola IMT Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA, Cycle: 30.
- From 01/11/2015 to 31/10/2018: **Member of the board** for the PhD in "Institutions, Markets and Technologies", Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 31.

- From 01/11/2016 to 31/10/2019: **Member of the board** for the PhD in "Institutions, Markets and Technologies", Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 32.
- From 01/11/2017 to 31/10/2020: **Member of the board** for the PhDs in "Cognitive and Cultural Systems" and "Systems Science", Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 33.
- From 01/11/2018 to 31/10/2021: **Member of the board** for the PhDs in "Cognitive and Cultural Systems" and "Systems Science", Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 34.
- From 01/11/2019 to 31/10/2022: **Member of the board** for the PhDs in "Cognitive and Cultural Systems" and "Systems Science", Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 35.
- From 01/11/2020 to 31/10/2023: **Member of the board** for the PhD in "Systems Science", Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 36.
- From 01/11/2021 to 31/11/2024: **Member of the board** for the PhD in "Systems Science", Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 37.
- From 01/11/2022 to 31/10/2025: **Coordinator of the PhD Programme** in Management of Digital Transformation, Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 38.
- From 01/11/2022 to 31/10/2025: **Director of the PhD Track** in Computational Mechanics and **member of the board** for the PhD in "Systems Science", Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 38.
- From 01/11/2023 to 31/10/2026: **Coordinator of the PhD Programme** in Management of Digital Transformation, Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 38.
- From 01/11/2023 to 31/10/2026: **Director of the PhD Track** in Computational Mechanics and **member of the board** for the PhD in "Systems Science", Scuola IMT - Istituzioni, Mercati, Tecnologie - Alti Studi - LUCCA - Cycle: 39.

Editorial appointments

- **Founding Associate Editor** of **Frontiers in Mechanical Engineering**, Section Tribology, since March 2018.
- **Member** of the **Editorial Board** of the **International Journal of Solids and Structures** (Elsevier), since February 2016.
- **Member** of the **Editorial Board of Scientific Reports** (Nature Publishing Group), Chemical Physics section, since May 2015.
- **Contributing Editor** of the journal **Mechanics of Advanced Materials and Structures** (Taylor & Francis), since 2017.
- **Member** of the **Editorial Board** of the journal **Computers, Materials & Continua** (Tech Science Press), since March 2018.
- **Associate Editor** of the **Journal of Mechanical Engineering Science** (Proceedings of the Institution of Mechanical Engineers, Part C, SAGE), Materials, Stress Analysis & Structures section, from November 2014 till February 2020. Afterwards, member of the Editorial Board.
- **Review Editor** of the **Journal Frontiers of Mechanics of Materials**, since 2014.

- **Member** of the **Editorial Board of The Journal of Strain Analysis for Engineering Design** (SAGE), since November 7, 2011.
- **Member** of the **Editorial Board** of the journal **Heliyon** (Elsevier), from August 2018 to August 2019.
- **Member** of the **Editorial Board of the American Journal of Engineering and Applied Sciences**, from January 2015 to March 2019.
- **Member** of the **Review Board of the Journal Fracture and Structural Integrity**, since August 2009.
- **Managing Guest-Editor** of the special issue "Fracture and Contact Mechanics for Interface Problems" [Engineering Fracture Mechanics, Vol. 80, 1-2, 2012, doi: 10.1016/j.engfracmech.2012.01.002]. Co-guest editors: A. Carpinteri (Politecnico di Torino, Italy) and P. Wriggers (University of Hannover, Germany).
- **Managing Guest-Editor** of the special issue "Computational Methods for Interface Mechanical Problems" [Computational Mechanics, Vol. 50, 3, 2012, doi: 10.1007/s00466-012-0771-1]. Co-guest editors: A. Carpinteri (Politecnico di Torino, Italy) and P. Wriggers (University of Hannover, Germany).
- **Guest editor** of the special issue of the Journal of Strain Analysis for Engineering Design (SAGE) Vol. 51 (4), May 2016, entitled: Special Issue on the EUROMECH Colloquium 575. Co-guest editor: D.A. Hills (Università di Oxford), doi: 10.1177/0309324716642941.
- **Guest editor** of the special issue of the journal Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science (SAGE) Vol. 230 (9), May 2016, entitled: Special Issue on EUROMECH 575. Co-guest editor: D.A. Hills (Università di Oxford), doi: 10.1177/0954406216635330.
- **Guest editor** of the special issue of the journal Meccanica (Springer) Vol. 53 (3), February 2018, entitled: Recent Advances on the Mechanics of Materials. Co-guest editors: L. Bardella (Università di Brescia) and P. Vena (Politecnico di Milano), doi: 10.1007/s11012-017-0803-1
- **Guest editor** of the special issue of the International Journal of Solids and Structures (Elsevier) Vol. 253, October 2022, entitled: Special Issue in Honour of 80th Birthday of Prof. J.R. Barber. Co-guest editors: D.A. Hills (University of Oxford) and D. Dini (Imperial College London), doi: 10.1016/j.ijsolstr.2022.111818
- **Guest editor** of the special issue of the journal Mechanics Research Communications (Elsevier) Vol. 253, October 2023, entitled: Frontiers of contact and fracture mechanics-In memory of Professor Leon M. Keer. Co-guest editors: J.Q. Wang (Northwestern University, USA) and Xiaoqing Jin (Chongqing University China), doi: 10.1016/j.mechrescom.2022.104035

Honours and awards (in reverse chronological order)

- 2020, 2021, 2022, 2023 - Included in the "Stanford" **World's Top 2% Scientists List** (for both single year and career performances).
- Since 2021 - Included in the Top Italian Scientists list, section Engineering.
- Biography included in *Cartaditalia* n. 3 "New frontiers of scientific research in Italy" published by Istituto Italiano di Cultura, Bruxelles, in Italian, French, English and Dutch, http://iicbruxelles.esteri.it/iic_bruelles/resource/doc/2017/11/cartaditalia_n3-rid.pdf.
- March 2013 - Nominated member of the **Young Academy of Europe**; Alumno since 2022.

- March 2012 - **Scholarship from ABMEC** (Brazilian Association for Computational Methods in Engineering) for the participation in the 10th World Congress of Computational Mechanics, July 8-13, 2012, San Paolo, Brasil.
- 2008, 2009, 2010 & 2011 - **Award for Outstanding Scientific Activity of a Young Researcher**, conferred by Politecnico di Torino (2008: 5th position among all faculty members younger than 40; 2009: 2nd position; 2010: 1st position; 2011: 1st position).
- **Prize for Outstanding Collaboration of a Visiting Researcher** (Auszeichnung für hervorragende Zusammenarbeit als Gastwissenschaftler), conferred by the Freundeskreis der Leibniz Universität Hannover, Sektion Mechanik, January 2011.
- January 2010 - Recipient of the **Fellowship of the Alexander von Humboldt Foundation**. The AvH sponsorship is limited to those individuals who have demonstrated outstanding achievements in research and who contribute significantly to international cooperation and understanding.
- **ESIS Young Scientist Award 2010**, conferred by the European Structural Integrity Society. The purpose of the Young Scientist Award is to recognize individuals younger than 40 who have made distinguished, innovative work in fracture mechanics in their early career. The award was given to Dr. Paggi: "For outstanding contributions to fracture mechanics, and particularly in fatigue scaling, friction effects and nonlinear crack modelling".
- **Prize for Young Authors IGF 2009** conferred by the Italian Group of Fracture (IGF) for the paper entitled "Fatigue of quasi-brittle materials: a unified interpretation of microstructural size, crack size and size-scale effects".
- Selected by a joint ESF-ALLEA review panel as one of the 21 attendees to the ESF-ALLEA Forum "**Humanities Spring 2009 I**" that led to the statute of the Young Academy of Europe (Vienna, 8-10 June, 2009).
- Prize "**Premio Optime**" for the best young graduates of the year, conferred by the Industrial Union of Turin, in collaboration with the Turin University and Politecnico di Torino (2002).

Coordination and management of research projects (in reverse chronological order)

- 2023-2027 - Coordinator of the research unit at IMT for the **H2020 Marie Skłodowska-Curie Staff Exchanges** project DIAGONAL "Ductility and Fracture Toughness Analysis of Functionally Graded Materials" (GA 101086342), 184,000 Euro, 48 months.
- From 2020 to 2024: Coordinator of the research unit at IMT for the **H2020 Marie Skłodowska-Curie ITN Project** "New strategies for multifield fracture problems across scales in heterogeneous systems for Energy, Health and Transport" (GA 861061), 3,359,824.20 Euro (261,499.68 Euro for IMT), 48 months.
- From 2022 to 2024: Coordinator of the research project NEXTPAPER4.0 "Next Generation Paper and Packaging", **Development and Cohesion Fund of Tuscany Region**, 60.000 Euro, 24 months, in cooperation with Lucense scarl.
- From 2022 to 2023: Coordinator of the project "Scientific computing for natural sciences, social sciences, and applications: methodological and technological development", funded by the Italian Ministry of University and Research, **PRO3 joint programme** of the Italian Schools for Advanced Studies, 595,800 Euro, 24 months.
- From 2020 to 2022: Coordinator of the research unit at IMT for the **Project of Relevant National Interest 2017** (PRIN) "XFAST-SIMS: Extra fast and accurate simulation of complex structural

systems", together with University of Pavia, Politecnico di Torino, Politecnico di Milano, Politecnico di Bari, Università degli Studi Roma La Sapienza, 877,560 Euro (138,952 Euro for IMT), 36 months.

- From 01/03/2018 to 28/02/2020: Coordinator of a research unit for the **POR FESR 2014/2020** – action 1.1.5 sub-action a1 - Call 1, Strategic Projects of Research and Development "GlycoG-Lab 4.0", 2,500,575 Euro, 24 months.
- From 01/06/2018 to 31/12/2019: Coordinator of a research unit for the project "Brilliant Researchers Impact on Growth Health and Trust in research" (GA 818515), Research Executive Agency (Brussels), **H2020 call Marie Sklodowska-Curie COFUND**, Researchers' Night and Individual Fellowships Global, 200,000 Euro (12,500 Euro for IMT), 20 months.
- From 15/03/2018 to 14/03/2020: Principal investigator of the **MIUR-DAAD Joint Mobility Program 2017** "Multi-scale modeling of friction for large scale engineering problems". The project, in collaboration with Prof. Dr.-Ing. A. Popp (Bundeswehr Universität Munich) is granted by the Italian Ministry of Education, University and Research (MIUR), and the Deutscher Akademischer Austausch Dienst (DAAD), 40,000 Euro (20,000 Euro for IMT), 24 months.
- From 01/03/2018 to 28/02/2020: Principal investigator of a project **POR FSE 2014-2020**: financial support for 1 two-years post-doctoral research fellowship, co-funded by Tuscany Region and by the company CROMOLOGY ITALIA spa (Porcari, Lucca, Italia), 54,000 Euro, 24 months.
- From 01/06/2016 to 31/12/2017: Coordinator of a research unit (Scuola IMT Alti Studi Lucca) for the project "Brilliant Researchers Impact on Growth Health and Trust in research" (GA 722944), Research Executive Agency (Brussels), **H2020 call Marie Sklodowska-Curie COFUND**, Researchers' Night and Individual Fellowships Global, 180,000 Euro (10,000 Euro for IMT), 20 months.
- From 01/01/2017 to 30/06/2018: Principal investigator of the **ERC Proof of Concept 2016** PHYSIC "Photovoltaic with superior crack resistance", European Research Council (GA 737447), 149.500 Euro, 18 months.
- From 01/12/2012 to 30/11/2017: Principal investigator of the **ERC Starting Grant 2012** "Multi-field and multi-scale Computational Approach to design and durability of PhotoVoltaic Modules", European Research Council (GA 306622), FP7 ERC-2012-StG_20111012, 1,483,980 Euro, 60 months.
- From 07/03/2012 to 06/03/2016: Principal investigator of the project **FIRB Future in Research 2010** "Structural mechanics models for renewable energy applications" (RBFR107AKG), MIUR (Roma), 954,800 Euro, 48 months.
- From 01/01/2011 to 31/12/2012: Principal investigator of the **Italy-Germany Vigoni project 2010** "3D modelling of crack propagation in polycrystalline materials", Ateneo Italo Tedesco (Trento), 5.000 Euro, 24 months. German partner: Prof. Peter Wriggers, Leibniz University Hannover (10,000 Euro from DAAD).

Organization of conferences, workshops, summer schools (in reverse chronological order)

- **Organizer** (together with Ali Javili, Jakub Lengiewicz, Julien Scheibert, Stanislaw Stupkiewicz) of the session "Contact and Interface Mechanics" at SolMech 2024, September 16-18, 2024, Wroclaw, Poland.

- **Organizer** (together with R. Aghababaei) of the Thematic Session "Tribology-contact and friction" organizer at the "26th International Congress of Theoretical and Applied Mechanics", ICTAM 2024, August 25-30, 2024, Daegu, South Korea.
- **Member of the Scientific Committee**, "Contact Mechanics International Symposium", CMIS2024, May 22-24, 2024, Lyon, France.
- **Member of the Scientific Committee**, "NewFrac Conference", May 7-10, 2024, University of Porto, Portugal.
- **Member of the Scientific Committee**, "GIMC-GMA-GBMA 2023 joint conference", July 12-14, 2023, Reggio Calabria, Italy.
- **Member of the International Advisory Committee** for the "15th International Congress on Fracture", ICF15, Atlanta (US), from 13/06/2021 to 18/06/2021.
- **Member of the Scientific Committee** of the Contact Mechanics International Symposium 2020, Lausanne, Switzerland, from 13/05/2020 to 15/05/2020.
- **Coordinator** (together with D.A. Hills, University of Oxford) and professor of the Advanced Course "Modelling and Simulation of Tribological Problems in Technology", International Centre for Mechanical Sciences (CISM), Udine, Italy, from 28/05/2018 to 01/06/2018.
- **Member of the International Scientific Committee** of the "Contact Mechanics International Symposium", Oropa, Biella, Italy, from 16/05/2018 to 18/05/2018.
- **Invited professor** for the second Summer School "Engineering of surfaces, lubrication models, nanotribology, innovative materials" organized by the Italian Association of Tribology, Salerno, Italy, from 28/08/2017 to 01/09/2017.
- **Member of the Scientific Committee** of the "14th International Conference on Fracture", Rhodes, Greece, from 18/06/2017 to 23/06/2017.
- **Member of the Scientific Committee** of the "5th International Conference on Computational Modeling of Fracture and Failure of Materials and Structures (CFRAC 2017)", Nantes, Francia, from 14/06/2017 to 16/06/2017.
- **Organizer** of the workshop "Funding opportunities for young researchers' mobility" in collaboration with Scuola Superiore Sant'Anna, Scuola Normale Superiore and Scuola Universitaria Superiore Pavia, Lucca, 16/02/2017.
- **Organizer** of the "XXI Convegno Italiano di Meccanica Computazionale e VIII Riunione del Gruppo Materiali AIMETA" (GIMC-GMA 2016), Scuola IMT Alti Studi Lucca, from 27/06/2016 to 29/06/2016.
- **Member of the Organizing Committee** of the "21st European Conference on Fracture", Catania, Italy, from 20/06/2016 to 24/06/2016.
- **Organizer** of the workshop "Innovative entrepreneurship in universities. From the idea to the business plan", in collaboration with Scuola Normale Superiore and Scuola Superiore Sant'Anna, Lucca, 16/06/2016.
- **Organizer** of the workshop "Seminar on metallic and ceramic materials with applications to paper industry", under the patronage of Confindustria Toscana Nord and the support of ASM International, Lucca, 26/05/2016.
- **Member of the Scientific Committee** of the workshop "Modelling of refractory materials and ceramics, with a view to technological applications", Trento, Italy, 22/04/2016.

- **Member of the Organizing Committee** of the "IACM Special Interest Conference X-DMS 2015, eXtended Discretization MethodS", Ferrara, Italy, from 09/09/2015 to 11/09/2015.
- **Organizer** (together with D.A. Hills, University of Oxford) of the EUROMECH Colloquium 575 "Contact Mechanics and Coupled Problems in Surface Phenomena", Scuola IMT Alti Studi Lucca, from 30/03/2015 to 02/04/2015.
- **Member of the Scientific Committee** of the workshop "State of the art and challenges in thermal and mechanical modelling of ceramic materials", Trento, Italy, 20/03/2015.
- **Member of the Organizing Committee** of the "XXI Congresso AIMETA di Meccanica Teorica e Applicata", from 17/09/2013 to 20/09/2013.
- **Member of the Scientific Committee** of the "8th International Conference on Fracture Mechanics of Concrete and Concrete Structures", Toledo, Spain, from 10/03/2013 to 14/03/2013.
- **Organizer** of the workshop of the Italian Group of Fracture "Virtual Testing of Materials and Structures", Torino, Italy, 08/10/2012.
- **Member of the Local Organizing Committee** of the IUTAM 2012 Symposium "Fracture phenomena in nature and technology", Brescia, Italy, from 01/07/2012 to 05/07/2012.
- **Member of the Organizing Committee** of the 11th International Conference on Fracture, Torino, Italy, from 20/03/2005 to 25/03/2005.

Invited lectures at conferences, selected invited seminars

1. M. Ciavarella, M. Paggi, A. Carpinteri "A generalized dimensional analysis approach to fatigue crack growth", keynote lecture, 12th International Conference on Fracture", Ottawa, Canada, from 12-07-2009 to 17-07-2009.
2. M. Paggi "Constitutive modelling of finite thickness interfaces: a computational approach based on molecular dynamics, damage mechanics and nonlinear fracture mechanics", ETH Zurich, Switzerland, 12/01/2011.
3. M. Paggi "Zusammenarbeit und Forschungsaktivitäten an dem Institut für Kontinuumsmechanik", Institut für Dynamik und Schwingungen, Leibniz Universität Hannover, Germany, 28/01/2011.
4. M. Paggi "Analogy between singular elastic and electromagnetic fields at multimaterial wedge tips and applications to metamaterials", Department of Engineering Science, University of Oxford, UK, 28/02/2011.
5. M. Paggi "A nonlocal cohesive zone model for finite thickness interfaces: mathematical formulation, numerical implementation and materials science applications", Department of Structural Mechanics, Università di Pavia, Italy, 08/04/2011.
6. M. Paggi "Length scales in contact mechanics and their effects on tribological properties", Laboratoire de Simulation en Mécanique des Solides, École Polytechnique Fédérale de Lausanne, Switzerland, 14/04/2011.
7. M. Paggi "Normal and tangential contact between rough surfaces: mathematical aspects and numerical treatment", Institute of Computational Science of the University of Lugano, Switzerland, 07/12/2011.
8. M. Paggi "Length scales in contact mechanics of rough surfaces: scaling of real contact area and thermal contact conductance", Lecture at the Workshop Multiscale Methods for Interface Coupling (MUSIC) International Research Training Group in St. Anton, Austria, 12-16/12/2011.

9. M. Paggi "Length scales in fracture mechanics of heterogeneous and hierarchical materials: the role of imperfect interfaces on the scaling of material properties", Lecture at the Workshop Multiscale Methods for Interface Coupling (MUSIC) International Research Training Group in St. Anton, Austria, 12-16/12/2011.
10. M. Paggi "Physical modelling and computational strategies for 2D and 3D cohesive fracture and recent progresses towards multi-physics", University of Paris-EST, Marne-La-Vallée, France, 21-25/01/2013.
11. M. Paggi "Emergent properties in interface mechanical problems: A paradigm of organized complexity", IMT Institute for Advanced Studies, Lucca, Italy, 05-03-2013.
12. M. Paggi "Prospettive di ricerca nell'ambito della meccanica computazionale", IMT Institute for Advanced Studies, Lucca, Italy, 09-05-2013.
13. M. Paggi "Recent advances of interface constitutive laws for Fracture Mechanics", Seminar at the Institute of Structural Mechanics of the Leibniz University of Hannover, Hannover, Germany, from 19 to 23-08-2013.
14. M. Paggi "Modelling of cracking in PV modules: Physical aspects and Computational Methods", invited lecture, Workshop "Measurements and models for PV-Module analysis", Hameln, Germany, 05-11-2013.
15. M. Paggi "Mechanical challenges in the durability of photovoltaic modules", Technical University of Berlin, Germany, 17-12-2013.
16. M. Paggi "Fracture dynamics of laminates with finite thickness interfaces", Université Paris-Est Marne-la-Vallée, France, 29-04-2014.
17. M. Paggi "Multi-scale and multi-physics models applied to interface problems", Université Paris-Est Marne-la-Vallée, France, 16-05-2014.
18. M. Paggi "Quantitative analysis of cracking in in photovoltaic modules using a multi-physics approach", Institute of Solar Energy Research della Leibniz University di Hannover, Hamelin, Germany, from 29-05-2014 to 06-06-2014.
19. M. Paggi, A. Infuso "Flaw tolerance of continuum and discrete mechanical systems: the roles of heterogeneity and nonlocality", invited lecture, International Workshop "New Frontiers in Multiscale Modelling of Advanced Materials", Villazzano (Trento), Italy, from 17-06-2014 to 20-06-2014.
20. M. Paggi "Multi-physics modelling of cracking in quasi-brittle materials for energy applications", Solid and Structural Mechanics Group dell'Università degli Studi di Trento, Italy, 18-06-2014.
21. M. Paggi "Nonlinear fracture dynamics of laminates with finite thickness adhesives", Grupo de Elasticidad y Resistencia de Materiales dell'Università di Siviglia, Spain, 27-06-2014.
22. M. Paggi "Modelling and simulation of fracture in classical and hierarchical polycrystalline materials towards the design of super-resistant cutting tools", invited lecture, Special Interest Seminar on Simulation and Modelling in Hard Materials presso "Euro PM2014 International Powder Metallurgy Congress & Exhibition", Salzburg, Austria, 24-09-2014.
23. M. Paggi "A fully coupled thermo-hygro-mechanical theory for the analysis of diffusive phenomena in photovoltaic modules", invited lecture, 2nd Workshop "Impact of mechanical and thermal load on the long term stability of PV modules", Hannover, Germany, 03-02-2015.
24. M. Paggi "Funding opportunities for PhD students and post-docs", for the PhDs of the Department of Civil, Chemical and Environmental Engineering of the University of Genova, 12-02-2015.
25. M. Paggi "New trends in computational modelling of interfaces", Università Campus Bio-Medico di Roma, Italy, 15-05-2015.
26. M. Paggi "Multi-physics Modelling of Photovoltaic Laminates", MUSIC Graduate School "Multiscale Methods for Interface Coupling" of the Leibniz University di Hannover, Germany, 18-05-2015.

27. M. Paggi "Computational methods for nonlinear fracture mechanics problems with large displacements", Università degli Studi di Trento, Italy, 28-09-2015.
28. M. Paggi "Multi-field and multi-scale computational approach to design and durability of photovoltaic Modules: project overview and achievements", Joint Research Centre JRC, Ispra, Italy, 21-10-2015.
29. M. Paggi "Numerical methods for thermo-mechanics, fluid-structure interaction, and failure analysis", Istituto Nazionale di Fisica Nucleare, Laboratori Nazionali del Sud, Catania, Italy, from 03-12-2015 to 05-12-2015.
30. M. Paggi "Multi-scale and multi-field modelling and testing of photovoltaic modules", invited keynote lecture, Workshop on Multi-Scale and Multi-Physics Testing, Berlin, Germany, from 18-02-2016 to 19-02-2016.
31. M. Paggi "Durability of photovoltaics modules: physical modeling, experimental testing and novel simulation methods", Università degli Studi di Trento, Italy, 16-03-2016.
32. M. Paggi "Computational methods for interface mechanical problems", PhD School in Engineering "Leonardo da Vinci", Università di Pisa, 15-04-2016.
33. M. Paggi "Durability of photovoltaics modules: modeling, simulation and experiments", Department of Engineering Information, Università di Pisa, 26-10-2016.
34. M. Paggi "Micromechanics and deformable excitable biological cells: A new research arena for contact mechanics", invited keynote lecture, Micro/Nanoscale Models for Tribology, Lorentz Centre, Leiden, The Netherlands, from 30-01-2017 to 03-02-2017.
35. M. Paggi "Durability of photovoltaics modules: modeling, simulation and experiments", Colloquia Doctoralia, Politecnico di Milano, 09-03-2017.
36. M. Paggi "Guidelines for EL outdoor Qualification of PV Systems", invited lecture, Intersolar Europe Conference and Exhibition, 30-05-2017, Munich, Germany.
37. M. Paggi "Crack penetration or deflection at an interface: a new framework based on the phase field approach for brittle fracture and the interface cohesive zone model", Università degli Studi di Trento, 01-06-2017.
38. M. Paggi, J. Reinoso "Computational methods for fracture and contact at interfaces: cohesive zone model, phase field approach, micromechanics", invited keynote lecture, 5th International Conference on Computational Contact Mechanics, Lecce, Italy, from 05-07-2017 to 07-07-2017.
39. M. Paggi "Recent trends on the integration of experimental testing and simulations for materials design", Università Campus Bio-Medico di Roma, 10-04-2019.
40. M. Paggi "Cross-functional skills, innovation and entrepreneurship: The point of view of a School for Advanced Studies", Università Campus Bio-Medico di Roma, Job Day 2019, 11-04-2019.
41. M. Paggi "La Scienza delle Costruzioni vista attraverso il dialogo tra forma e resistenza", invited lecture, "107° Corso di orientamento" organized by Scuola Normale Superiore, 8-13 July 2019, Accademia Nazionale dei Lincei, Rome.
42. M. Paggi, Invited lecturer for the Course "COACH4.0", Scuola Superiore Sant'Anna, Pisa, 2020.
43. M. Paggi "In-situ strength effect in long fibre reinforced composites: A micro-mechanical analysis using the phase field approach to fracture", keynote lecture, 25th International Congress of Theoretical and Applied Mechanics (ICTAM), Milano, August 22-27, 2021.
44. M. Paggi "Variational simulation of failure in heterogeneous materials by coupling the phase field approach to fracture and the cohesive zone model", Theoretical and Applied Mechanics Seminar Series, Northwestern University (USA), October 28, 2021.
45. M. Paggi "Coupling the phase field approach to fracture and the cohesive zone model for failure analysis of heterogeneous materials", invited seminar at the Institute of Fundamental Technological Research of the Polish Academy of Sciences, 24 January 2022.

46. M. Paggi "Il dialogo tra la meccanica e le altre discipline STEM: l'interdisciplinarietà come chiave per il progresso scientifico e tecnologico", invited lecture, "116° Corso di orientamento" organized by Scuola Normale Superiore, 19-23 June 2023, Centro Congressi Lingotto, Torino.
47. M. Paggi "Advances on high-fidelity phase-field models for fracture mechanics of quasi-brittle materials and interfaces", keynote lecture, XI International Conference of the International Association on Fracture Mechanics of Concrete and Concrete Structures (IA-FraMCoS-XI), Bangalore, September 10-14, 2023.
48. M. Paggi "Advancements on phase-field models for fracture applied to quasi-brittle materials in compression", invited lecture, Thematic Session "Damage & fracture mechanics" at the 26th International Congress of Theoretical and Applied Mechanics (ICTAM), Daegu, South Korea, August 25-30, 2024.

Knowledge and technology transfer

- 04/04/2019: **Co-founder** of the university spin-off and innovative start-up TREE-TOWER S.R.L. (www.tree-tower.eu), together with Dr. Francesco Biancalani (CEO), former PhD scholar in Management Science at IMT Lucca.
- Italian Patent n.102018000006351 deposited on 15/06/2018: "Impianto di laminazione di celle solari in silicio e processo realizzato con tale impianto", **Inventors**: Marco Paggi, Francesco Biancalani, Claudia Borri, Irene Berardone, Saheed Olalekan Ojo; patent holder: Scuola IMT Alti Studi Lucca.
- **Supervisor** of PhD scholarships co-funded by Lucart spa (cycle 38) and by Nemesys srl (cycle 39) for the PhD in Management of Digital Transformation.
- From 15/02/2016 to 31/10/2021: **Member of the executive board** of the joint Technology Transfer Office of Scuola Superiore Sant'Anna, Scuola Normale Superiore, Scuola IMT Alti Studi Lucca and Scuola Universitaria Superiore Pavia (JoTTO, Joint Technology Transfer Office, <http://www.jointto.it>)
- From 2016: **technology transfer contracts** for more than 200.000 Euro with the following companies: Robert Bosch GmbH, Tacchificio Villa Cortese srl, Euro Inn Advisory srl, CIEFFEPI srl; POR-FSR and POR-FESR strategic research and development projects in collaboration with CROMOLOGY Italia spa and Lucense scarl, for more than 2.500.000 Euro.
- **Industrial collaboration** with Applied Materials srl (Olmi di S. Biagio di Callalta, Bologna, Italia), Jabil Industrial and Energy (San Petersburg, Florida, USA) and Robert Bosch GmbH (Renningen, Germany) on research topics leading to the following joint publications:

V. Gade, N. Shiradkar, M. Paggi, J. Opalewski (2015) Predicting the long term power loss from cell cracks in PV modules. IEEE 42nd Photovoltaic Specialist Conference (PVSC), from 14 to 19 June 2015, New Orleans (USA), p. 1-6, doi: 10.1109/PVSC.2015.7355665

M. Paggi, M. Martire, I. Berardone (2016) An electric model of cracked solar cells accounting for distributed damage caused by crack interaction, Energy Procedia, 92:576-584, doi: 10.1016/j.egypro.2016.07.22

H. Zarei, M.R. Marulli, M. Paggi, R. Pietrogrande, C. Üffing, P. Weißgraeber (2020) Adherend surface roughness effect on the mechanical response of silicone-based adhesive joints, Engineering Fracture Mechanics 240, 107353, doi: 10.1016/j.engfracmech.2020.107353

H. Zarei, M.R. Marulli, M. Paggi, R. Pietrogrande, C. Üffing, P. Weißgraeber (2022) Mechanical characterization and failure modes in the peeling of adhesively bonded strips from a plastic substrate,

Board of trustees and peer-review activities

From 01/09/2018: Member of the International Advisory Board of the Excellence Laboratory MANUTECH-SISE (Lyon-St Etienne, France) on Science and Engineering of Surfaces and Interfaces.

Peer-reviewer for several international journals of the field.

Peer-reviewer for the following institutions:

- European Research Council (ERC)
- Ministero dell'Istruzione, dell'Università e della Ricerca (MIUR)
- Agenzia Nazionale di Valutazione del Sistema Universitario e della Ricerca (ANVUR)
- UK Engineering and Physical Sciences Research Council
- Deutscher Akademischer Austausch Dienst (DAAD)
- German Research Foundation (DFG)
- National Council for Scientific Research of Romania
- Croatian Ministry of Science, Education and Sports
- Czech Science Foundation
- Tromsø Research Foundation, Norvegia
- Research Proposal Foundation, Cyprus
- Indian Institute of Technology, New Delhi
- Prix Jeunes Talents France, L'Oréal-UNESCO Pour les Femmes et la Science
- Natural Sciences and Engineering Research Council of Canada
- Italian Competence Center ARTES4.0 on Industry 4.0

List of publications

Marco Paggi is author of 5 books on structural mechanics, thermo-elasticity, and contact mechanics and of more than 240 articles published in international peer-reviewed journals on modelling and simulation of complex phenomena for new materials (biomaterials, advanced materials, composite materials, materials for renewable energy systems, durability of photovoltaics) and on coupled problems in physics and engineering (reaction-diffusion systems, solid-fluid interactions, interface interactions, epidemiology), characterized by a strong interdisciplinary approach.

For the list of publications and updated bibliographic data, see:

ORCID: <http://orcid.org/0000-0001-9409-9782>

SCOPUS author ID: 35148174600

Google Scholar: <https://scholar.google.it/citations?user=97vziRAAAAJ&hl=it>

Lucca, 27/02/2024