

Andrea Piccolroaz

Curriculum Vitae

Associate Professor
Department of Civil, Environmental and Mechanical Engineering
University of Trento, Via Mesiano, 77, 38123 Trento, Italy

EDUCATION

- 2000 **Materials Engineering degree**, University of Trento.
Thesis: *Pressatura a freddo di polveri ceramiche: indagine sperimentale e modellazione costitutiva*. Tutor: Prof. Davide Bigoni.
- 2004 **PhD in Materials and Structural Engineering**, University of Trento.
Thesis: *Elastoplastic models of compaction of granular materials*. Tutors: Prof. Davide Bigoni, Prof. John Willis, Prof. Alessandro Gajo.
- 2006 **Post-doc** at the Department of Mathematical Sciences, University of Liverpool, UK.
Host: Prof. Alexander Movchan

CURRENT POSITION

- 2014 **Associate Professor in Solid and Structural Mechanics**, Department of Civil, Environmental and Mechanical Engineering, University of Trento.

PREVIOUS POSITIONS

- 2006 **Research Associate**, Applied Mathematics Division, Department of Mathematical Sciences, *University of Liverpool*, UK.
- 2007 – 2010 **Assistant Professor** in Solid and Structural Mechanics, Department of Mechanical and Structural Engineering, University of Trento, Italy
- 2010 – 2012 **Marie Curie Fellow (IEF)**, Aberystwyth University, Aberystwyth, UK.
Host: Prof. Gennady Mishuris
- 2012 – 2014 **Assistant Professor in Solid and Structural Mechanics**, Department of Civil, Environmental and Mechanical Engineering, University of Trento, Italy
- 2013 – 2017 **Marie Curie Fellow (FP7 - PEOPLE - Career Integration Grant)**, Department of Civil, Environmental and Mechanical Engineering, University of Trento, Italy

TEACHING EXPERIENCE

Supervision of Post-doc:

- Lorenzo Morini, post-doc position for 3 years (2013-2015) for the project *Structural mechanics models for renewable energy applications*, **financed by FIRB 2010 grant**.
- Andrea Bacigalupo, post-doc position for 1 year (2014) for the project *Damage in microstructured materials and devices*, **financed by FIRB 2010 grant**.
- Luigi Cabras, post-doc position for 18 months (2016-2017) for the project *3D printed metallic foams for biomedical applications: understanding and improving their mechanical behaviour*, **financed by the University of Trento**.

Supervision of PhD students:

- Luca Argani, Engineering of Civil and Mechanical Structural Systems, 26th cycle.
- Massimo Penasa, Doctoral Programme in Civil, Environmental and Mechanical Engineering, 29th cycle.
- Scot Swan, Doctoral Programme in Civil, Environmental and Mechanical Engineering, 29th cycle, **financed by the FP7 ITN CERMAT2 grant.**
- Nicola Bordignon, Doctoral Programme in Civil, Environmental and Mechanical Engineering, 30th cycle.
- Daniel Kempen, Doctoral Programme in Civil, Environmental and Mechanical Engineering, 31st cycle, **financed by the FP7 ITN CERMAT2 grant.**
- Diana Giarola, Doctoral Programme in Civil, Environmental and Mechanical Engineering, 31st cycle
- Giovanni Bordiga, Doctoral Programme in Civil, Environmental and Mechanical Engineering, 32nd cycle.
- Marco Rossi, Doctoral Programme in Civil, Environmental and Mechanical Engineering, 33nd cycle.
- Mattia Nardin, Doctoral Programme in Civil, Environmental and Mechanical Engineering, 34nd cycle.

Supervision of undergraduate and graduate students:

- Elena Mattivi, Compressione a freddo di polveri ceramiche per usi strutturali, 2006.
- Enrico Cazzador, Modelli Micromeccanici di Comportamento di Solidi Murari, 2009.
- Francesco Poltronieri, Modellazione elastoplastica del conglomerato di cemento, 2009.
- Bruschetta Federico, Un modello elastoplastico per le polveri metalliche e ceramiche, 2010.
- Massimo Penasa, Sviluppo di un algoritmo di integrazione per leggi costitutive elastoplastiche non standard, 2011
- Alessandro Cazzoli, Termoelasticita' e termoplasticit  con modulo elastico variabile rispetto alla temperatura e implementazione con il software abaqus, 2012.
- Francesco Poltronieri, Un modello costitutivo termo-elasto-plastico per il calcestruzzo e applicazione alla resistenza al fuoco di strutture, 2012.
- Mattia Sonato, Modelling of elasto-plastic adhesive joints between elastic components: derivation of transmission conditions by asymptotic techniques, 2013.
- Niccol  Boccagni, Determinazione della superficie di snervamento di un provino tramite simulazioni di prove triassiali, 2014.
- Nicola Bordignon, Modellazione e simulazione di giunti adesivi con tecniche asintotiche, 2014.
- Chiara Nardin, Instabilit  delle strutture in grandi deformazioni: l'elastica di Eulero, 2015
- Alessio Froner, Programma agli Elementi Finiti per la risoluzione di Telai Piani: implementazione in Mathematica, 2017.
- Giorgio Caumo, Procedimento per la risoluzione di un problema non-lineare mediante algoritmo di Newton, 2017
- Cvete Pavloski, Modello agli elementi finiti per la dinamica delle travi, 2018.
- Nicola Viglio, Calcolo dell'equazione della catenaria tramite l'implementazione degli elementi finiti, 2019.
- Nicol  Lanaro; Metodi computazionali per problemi strutturali non lineari, 2019.
- Mattia Zini, Analisi comportamento dinamico di una colonna in acciaio e di una colonna in calcestruzzo armato soggette a terremoto in Abaqus CAE e Wolfram Mathematica, 2020.

Undergraduate and graduate courses:

Course Title	Years
Mechanics of Materials and Fracture Mechanics (Meccanica dei Materiali e della Frattura)	2006 - 2010
Structural Instability (Instabilità delle Strutture)	2006 - 2010 2012 - present
Solid and Structural Mechanics (Scienza delle Costruzioni)	2009 - 2010
Statics (Statica)	2012 - 2013
Fracture Mechanics (Meccanica della Frattura)	2012 - 2014
Computational Mechanics of Structures 1 (Meccanica Computazionale delle Strutture 1)	2016 - present
Computational Mechanics of Structures 2 (Meccanica Computazionale delle Strutture 2)	2019 - present

UNIVERSITY SERVICES

21/11/2007 – 31/07/2010	Membro della Giunta di Dipartimento, Department of Mechanical and Structural Engineering.
01/09/2008 – 31/07/2010	Membro della commissione per le abbreviazioni di carriera, Faculty of Engineering.
08/06/2016 – 20/09/2018	Membro della Giunta di Dipartimento, Department of Civil, Environmental and Mechanical Engineering.
01/04/2013 – present	Membro del Gruppo di Autovalutazione del Dipartimento, Department of Civil, Environmental and Mechanical Engineering.
15/05/2015 – present	Vice-Coordinatore di Area Didattica in Ingegneria Civile, Department of Civil, Environmental and Mechanical Engineering.
01/07/2017 – present	Membro della Commissione per i Bandi della Didattica, Department of Civil, Environmental and Mechanical Engineering.

INTERNATIONAL EXPERIENCES

	Host Institution	Period	Duration (months)
1.	Visiting Researcher, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, Cambridge, UK.	20/05/2003 - 30/09/2003	4
2.	Research Associate , Applied Mathematics Division, Department of Mathematical Sciences, University of Liverpool, Liverpool, UK.	09/01/2006 - 09/10/2006	9
3.	Visiting Researcher, Applied Mathematics Division, Department of Mathematical Sciences, University of Liverpool, Liverpool, UK.	12/07/2007 - 31/07/2007	1

4.	Visiting Researcher, Institute of Mathematics and Physics, Aberystwyth University, Aberystwyth, UK.	07/07/2008 - 07/09/2008	2
5.	Visiting Researcher, Institute of Mathematics and Physics, Aberystwyth University, Aberystwyth, UK.	14/07/2009 - 31/08/2009	2
6.	Visiting Researcher, International Centre for Mathematical Sciences, Edinburgh, UK.	05/07/2010 - 30/07/2010	1
7.	Marie Curie Fellow (IEF) , Aberystwyth University, Aberystwyth, UK.	01/08/2010 - 31/07/2012	24
8.	Visiting Researcher, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.	05/08/2019 - 30/08/2019	1

RESEARCH GRANTS AS COORDINATOR/PRINCIPAL INVESTIGATOR

- Youngest European Coordinator of an **ITN Project** (acronym CERMAT2). Initial Training Networks (ITN) projects are very prestigious and highly competitive, with a success rate less than 10%.
- The ITN Project involves 8 partners (5 Academic, 3 Industrial) distributed in 5 European Countries (Italy, U.K., Poland, Belgium, Serbia).
- Holder of two **Marie Curie Fellowships**: an **Intra-European Fellowship** at Aberystwyth University and a **Career Integration Grant Fellowship**.

	Project	Role	Funding Body	Duration (years)	Budget (Euro)
1.	INTERCRACKS Unsolved problems in Fracture Mechanics of heterogeneous materials (MARIE CURIE IEF 2009)	Principal Investigator	European Commission (FP7 IEF Project)	2	173,903.00
2.	CERMAT2 New ceramic technologies and novel multifunctional ceramic devices and structures (MARIE CURIE ITN 2013)	European Coordinator	European Commission (FP7 ITN Project)	4	2,571,864.00
3.	MEMIC Fracture mechanics of microstructured composites incorporating intrinsic length-scales (MARIE CURIE CIG 2013)	Principal Investigator	European Commission (FP7 CIG Project)	4	100,000.00

4.	FIRB 2010 Structural mechanics models for renewable energy applications	Scientific Coordinator of UNITN unit	MIUR (FIRB Fondo per gli investimenti della ricerca di base)	4	954,800.00
5.	REFRACTURE-2 Modelling and optimal design of refractories for high-temperature industrial applications for a low carbon society	European Coordinator	European Commission (H2020 ITN Project)	4	1,471,290.48

Total 5,271,857.48

PARTICIPATION IN OTHER RESEARCH PROJECTS

1. MIUR-COFIN 2003: *Mechanical damage phenomena of interfaces in structural systems: applications to civil engineering and emerging research fields*. Trento Research Unit, Coordinator Prof. A. Tralli.
2. MARIE CURIE ToK 2004 (MTKD-CT-2004-509809): *Mathematical modelling of fracture in adhesive joints*. Coordinator Prof. A.B. Movchan.
3. SACMI 2005: *Modelling and simulation of ceramic powder compaction*. Coordinator Prof. D. Bigoni.
4. VESUVIUS 2009: *Modelling and analysis of damage in alumina components for steel industry*. Coordinator Prof. D. Bigoni.
5. ICMS Research-in-groups 2010: *Singular solutions of mathematical elasticity in compound domains and modelling of failure in bi-material structural interfaces*. Coordinator Prof. G. Mishuris. <http://www.icms.org.uk/proposals/rigs>
6. ERC-2013-ADG-340561-INSTABILITIES *Instabilities and nonlocal multiscale modelling of materials*. Principal Investigator Prof. D. Bigoni.
7. WHT *Bringing pure and applied analysis together via the Wiener-Hopf technique, its generalisations and applications*. Coordinator: Anastasia Kisil.

INVITED TALKS AT INTERNATIONAL WORKSHOPS AND CONFERENCES

- | Title | Date |
|---|-------------------|
| 1. <i>A dynamical interpretation of flutter instability in a continuous medium</i> .
Workshop on asymptotic methods and integral equations.
Department of Civil and Structural Engineering, University of Sheffield. | 19 June 2006 |
| 2. <i>Weight functions and evaluation of Lazarus-Leblond constants in singular asymptotics at the edge of an interfacial wavy crack</i> .
Workshop on singularities and fracture mechanics.
Department of Mathematics, University of Keele. | 19 July 2007 |
| 3. <i>Failure of brittle materials through crack propagation. Perturbation models for interfacial cracks</i> .
Istanbul Teknik Universitesi, Istanbul. | 11 February 2009. |

4. *Unsymmetrical loading of interfacial cracks.* 24 September 2009
Escuela Superior de Ingenieros, Universidad de Sevilla.
5. *New fundamental solutions in linear fracture mechanics disclosed by the Wiener-Hopf technique.* 28-29 June 2010
Wiener-Hopf Workshop.
Institute of Mathematical and Physical Sciences, Aberystwyth University.
6. *Crack propagation in heterogeneous materials with several defects.* 16 August 2011
Italian/British Workshop on Fluid & Solids Interaction and Fracture & Failure of Solids and Structures.
Institute of Mathematical and Physical Sciences, Aberystwyth University.
7. *Fracture in heterogeneous and microstructured materials.* 26-27 March 2012
Workshop on Homogenization and micromechanics to understand the mechanical properties of bone.
School of Mathematics, Alan Turing Building, University of Manchester.
8. *Steady-state crack propagation in couple stress elastic materials.* 5 May 2012
Elasticity Day, One-Day Workshop on Mathematical Modelling in Solid Mechanics.
Liverpool University.
9. *Fracture and waves propagation in a bimaterial lattice structure.* 25-26 June 2012
The Second Wiener-Hopf Workshop.
Aberystwyth University.
10. *Steady-state propagation of a Mode III crack in couple stress elastic materials.* 28-29 August 2012
Chinese-Italian Bilateral Meeting on Mechanics.
City University of Hong Kong.
11. *Fracture in microstructured materials: continuum and discrete approach.* 22-24 October 2012
The 50th meeting of the Society for Natural Philosophy "New materials and new problems in continuum mechanics".
CISM - DMMS, Department of Mechanics of Materials and Structures, Udine, Italy.
12. *Static and dynamic fracture in materials with microstructure.* 5 September 2014
Department of Aeronautics and Astronautics, School of Engineering, University of Tokyo, Japan.
13. *Modelling, simulation and experimental validation of ceramic forming by powder compaction.* 18 September 2017
Plenary lecture, *The Sixth Serbian Ceramic Society Conference, Advanced Ceramics and Application, September 18-20, 2017, Serbian Academy of Sciences and Arts, Belgrade, Serbia*
14. *Failure propagation in dissimilar elastic lattices.* 7 June 2019
Recent advances in mechanics of solids and structures, Symposium in honour of Professor Davide Bigoni's 60th birthday, June 6-7, 2019, Trento, Italy.

ORGANIZATION OF INTERNATIONAL CONFERENCES

Member of Scientific/Organizing Committees of the following Conferences:

	Conference	Date
1.	ISDMM09 - <i>4th International Symposium on defect and material mechanics</i> . Trento, Italy.	6-9 July 2009
2.	Minisymposium: <i>Multiphysics and multiscale modeling of composites for renewable energy applications</i> . SMART 2013, Torino, Italy. Co-chairman with Marco Paggi (Politecnico di Torino), Laura De Lorenzis (University of Salento) .	24-26 June 2013
3.	International conference: CERMODEL 2013 - <i>Modelling and Simulation Meet Innovation in Ceramics Technology</i> . Trento, Italy.	10-12 July 2013
4.	Minisymposium: <i>Material simulation for energy applications</i> , 1st International Symposium on Energy Challenges and Mechanics, Aberdeen, UK. Co-chairman with Marco Paggi (IMT Institute for Advanced Studies Lucca), Laura De Lorenzis (Technische Universität Braunschweig), Dr. Tarabay Antoun (Lawrence Livermore National Laboratory) .	8-10 July 2014
5.	International conference: CERMODEL 2015 - <i>Modelling and Simulation Meet Innovation in Ceramics Technology</i> . Trento, Italy.	1-3 July 2015
6.	Minisymposium: <i>Meccanica e Materiali, Modellazione non locale dei materiali</i> . XXII Congresso - Associazione Italiana di Meccanica Teorica e Applicata. Co-organized with Andrea Bacigalupo (IMT Institute for Advanced Studies Lucca), Francesco Dal Corso (Univeristy of Trento) . Genova, Italy	14-17 September 2015
6.	International conference: CERMODEL 2017 - <i>Modelling and Simulation Meet Innovation in Ceramics Technology</i> . Trento, Italy.	26-28 July 2017
7.	Minisymposium: <i>Meccanica e Materiali, Progressi recenti nella modellazione meccanica dei materiali compositi e delle strutture periodiche</i> . XXIII Congresso - Associazione Italiana di Meccanica Teorica e Applicata. Co-organized with Andrea Bacigalupo (IMT Institute for Advanced Studies Lucca), Francesco Dal Corso (Univeristy of Trento), Maria Laura De Bellis (Department of Engineering for Innovation, University of Salento) . Salerno, Italy.	4-7 September 2017
8.	Minisymposium: <i>Dynamic Failure and Phase Transition in Structured Media</i> , 10 th European Solid Mechanics Conference (ESMC18), Bologna, Italy. Co-chairman with Gennady Mishuris (Aberystwyth University), Michael Nieves (Liverpool John Moores University), Bernd Markert (Aachen University) .	2-6 July 2018
9.	Minisymposium: <i>Dynamic Phenomena and Transition Processes in Structured Media</i> , 11 th European Solid Mechanics Conference (ESMC22), Galway, Ireland. Co-chairman with Gennady Mishuris (Aberystwyth University), Michael Nieves (Liverpool John Moores University), Andrea Piccolroaz (University of Trento), Anastasia Kisil (Manchester University) .	4 - 8 July 2022

AWARDS

Ceramic Technology Transfer Day Award (of the ACIMAC and ISTECC-CNR), 2012 (together with Prof. Bigoni and Dr. F. Dal Corso), for the **best and most innovative research projects in the field of ceramics that have applicability in industry.**

REVIEW ACTIVITY

Member of the Scientific Council of *Scientific Letters of Rzeszow University of Technology, Mechanics*, RUTMech, (p-ISSN 0209-2689), (e-ISSN 2300-5211).

Reviewer for national projects Prin 2012, Futuro in Ricerca 2013.

Reviewer for the following journals:

- International Journal of Solids and Structures
- Journal of Mechanics of Materials and Structures
- Acta Mechanica Sinica
- International Journal of Fracture
- Mechanics of Advanced Materials and Structures
- Journal of Elasticity
- Continuum Mechanics and Thermodynamics
- Computational Mechanics
- Engineering Fracture Mechanics
- ASME Journal of Applied Mechanics
- Mechanics Research Communications
- Multiscale Modeling and Simulation
- ASCE Journal of Structural Engineering
- Proceedings of the Royal Society A
- The IMA Journal of Applied Mathematics
- Journal of the Mechanics and Physics of Solids
- Journal of Mechanical Engineering Science
- Journal of the European Ceramic Society
- European Journal of Mechanics – A/Solids
- Acta Mechanica
- Wave motion
- Waves in Random and Complex Media
- Mathematics and Computers in Simulation
- Journal of Engineering Mechanics
- European Journal of Computational Mechanics
- The Journal of the Acoustical Society of America
- Philosophical Transactions of the Royal Society A
- Journal of Materials Engineering and Performance
- ZAMM - Zeitschrift fuer Angewandte Mathematik und Mechanik
- Quarterly Journal of Mechanics and Applied Mathematics
- Heliyon
- Journal of Pressure Vessel Technology
- International Journal of Engineering Science
- Rivista Italiana di Geotecnica
- Archive of Applied Mechanics
- Archives of Mechanics
- Journal of Sandwich Structures and Materials

- Powder Technology
- Composites Part C

PAPERS PUBLISHED IN INTERNATIONAL JOURNALS

1. Bigoni, D. and Piccolroaz, A. (2004). Yield criteria for quasibrittle and frictional materials. *International Journal of Solids and Structures* **41**, 2855-2878.
2. Piccolroaz, A., Bigoni, D. and Gajo, A. (2006). An elastoplastic framework for granular materials becoming cohesive through mechanical densification. Part. I - small strain formulation. *European Journal of Mechanics A/Solids* **25**, 334-357.
3. Piccolroaz, A., Bigoni, D. and Gajo, A. (2006). An elastoplastic framework for granular materials becoming cohesive through mechanical densification. Part. II - the formulation of elastoplastic coupling at large strain. *European Journal of Mechanics A/Solids* **25**, 358-369.
4. Piccolroaz, A., Bigoni, D. and Willis, J.R. (2006). A dynamical interpretation of flutter instability in a continuous medium. *Journal of the Mechanics and Physics of Solids* **54**, 2391-2417.
5. Piccolroaz, A., Mishuris, G. and Movchan, A.B. (2007). Evaluation of the Lazarus-Leblond constants in the asymptotic model of the interfacial wavy crack. *Journal of the Mechanics and Physics of Solids* **55**, 1575-1600.
6. Piccolroaz, A., Mishuris, G. and Movchan, A.B. (2009). Symmetric and skew-symmetric weight functions in 2D perturbation models for semi-infinite interfacial cracks. *Journal of the Mechanics and Physics of Solids* **57**, 1657-1682.
7. Piccolroaz, A. and Bigoni, D. (2009). Yield criteria for quasibrittle and frictional materials: a generalization to surfaces with corners. *International Journal of Solids and Structures* **46**, 3587-3596.
8. Piccolroaz, A., Mishuris, G. and Movchan, A.B. (2010). Perturbation of Mode III interfacial cracks. *International Journal of Fracture* **166**, 41-51.
9. Piccolroaz, A., Mishuris, G. and Radi, E. (2012). Mode III interfacial crack in the presence of couple stress elastic materials. *Engineering Fracture Mechanics* **80**, 60-71
10. Mishuris, G., Movchan, A., Movchan, N. and Piccolroaz, A. (2012). Interaction of an interfacial crack with linear small defects under out-of-plane shear loading. *Computational Materials Science* **52**, 226-230.
11. Piccolroaz, A., Mishuris, G., Movchan, A., and Movchan, N. (2012). Perturbation analysis of Mode III interfacial cracks advancing in a dilute heterogeneous material. *International Journal of Solids and Structures* **49**, 244-255.
12. Piccolroaz, A., Mishuris, G., Movchan, A., and Movchan, N. (2012). Mode III crack propagation in a bimaterial plane driven by a channel of small line defects. *Computational Materials Science* **64**, 239-243.
13. Mishuris, G., Piccolroaz, A., Radi, E. (2012). Steady-state propagation of a Mode III crack in couple stress elastic materials. *International Journal of Engineering Science* **61**, 112-128.
14. Piccolroaz, A. and Mishuris, G. (2013). Integral identities for a semi-infinite interfacial crack in 2D and 3D elasticity. *Journal of Elasticity* **110**, 117-140.
15. Morini, L., Piccolroaz, A., Mishuris, G., Radi, E. (2013). Integral identities for a semi-infinite interfacial crack in anisotropic elastic bimetals. *International Journal of*

Solids and Structures **50**, 1437-1448.

16. Vellender, A., Mishuris, G., Piccolroaz, A. (2013). Perturbation analysis for an imperfect interface crack problem using weight function techniques. *International Journal of Solids and Structures* **50**, 4098-4107.
17. Morini, L., Piccolroaz, A., Mishuris, G., Radi, E. (2013). On fracture criteria for a crack propagating in couple stress elastic materials. *International Journal of Engineering Science* **71**, 45-61.
18. Bosi, F., Mazzocchi, E., Jatro, I., Dal Corso, F., Piccolroaz, A., Deseri, L., Bigoni, D., Cocquio, A., Cova, M., Odorizzi, S. (2013). A collaborative project between Industry and Academia to enhance engineering education at graduate and PhD level in ceramic technology. *International Journal of Engineering Education* **29**, 1-9.
19. Poltronieri, F., Piccolroaz, A., Bigoni, D., Romero-Baivier, S. (2014). A simple and robust elastoplastic constitutive model for concrete. *Engineering Structures* **60**, 81-84.
20. Bosi, F., Piccolroaz, A., Gei, M., Dal Corso, F., Cocquio, A., Bigoni, D. (2014). Experimental investigation of the elastoplastic response of aluminum silicate spray dried powder during cold compaction. *Journal of the European Ceramic Society* **34**, 2633-2642.
21. Stupkiewicz, S., Piccolroaz, A., Bigoni, D. (2014). Elastoplastic coupling to model cold ceramic powder compaction. *Journal of the European Ceramic Society* **34**, 2839-2848.
22. Penasa, M., Piccolroaz, A., Argani, L., Bigoni, D. (2014). Integration algorithms of elastoplasticity for ceramic powder compaction. *Journal of the European Ceramic Society* **34**, 2775-2788.
23. Mishuris, G., Piccolroaz, A., Vellender, A. (2014). Boundary integral formulation for cracks at imperfect interfaces. *The Quarterly Journal of Mechanics and Applied Mathematics* **67**, 363-387.
24. Morini, L., Piccolroaz, A., Mishuris, G. (2014). Remarks on the energy release rate for an antiplane moving crack in couple stress elasticity, *International Journal of Solids and Structures* **51**, 3087-3100.
25. Gourgiotis, P.A., Piccolroaz, A. (2014). Steady-state propagation of a Mode II crack in couple stress elasticity, *International Journal of Fracture* **188**, 119-145..
26. Stupkiewicz, S., Denzer, R., Piccolroaz, A., Bigoni, D. (2014). Implicit yield function formulation for granular and rock-like materials. *Computational Mechanics* **54**, 1163-1173.
27. Stupkiewicz, S., Piccolroaz, A., Bigoni, D. (2014). Finite-strain formulation and FE implementation of a constitutive model for powder compaction. *Computer Methods in Applied Mechanics and Engineering* **283**, 856-880.
28. Bacigalupo, A., Morini, L., Piccolroaz, A. (2014) Effective elastic properties of planar SOFCs: A non-local dynamic homogenization approach. *International Journal of Hydrogen Energy* **39**, 15017-15030.
29. Piccolroaz, A., Movchan, A.B. (2014) Dispersion and localization in structured Rayleigh beams. *International Journal of Solids and Structures* **51**, 4452-4461.
30. Stupkiewicz, S., Piccolroaz, A., Bigoni, D. (2015) Finite-strain formulation and FE implementation of a constitutive model for powder compaction. *Computer Methods in Applied Mechanics and Engineering* **283**, 856-880.
31. Sonato, M., Piccolroaz, A., Miszuris, W., Mishuris, G. (2015) General transmission conditions for thin elasto-plastic pressure-dependent interphase between dissimilar materials. *International Journal of Solids and Structures* **64-65**, 9-21.
32. Bordignon, N., Piccolroaz, A., Dal Corso, F., Bigoni, D. (2015) Strain localization and

- shear band propagation in ductile materials. *Frontiers in Materials* **2**:22.
33. Morini, L., Piccolroaz, A. (2015) Boundary integral formulation for interfacial cracks in thermodiffusive bimetals. *Proceedings of the Royal Society A* **471**:20150284.
 34. Bacigalupo, A., Morini, L., Piccolroaz, A. (2016) Multiscale asymptotic homogenization analysis of thermo-diffusive composite materials. *International Journal of Solids and Structures* **85-86**, 15-33.
 35. Papathanasiou, T.K., Dal Corso, F., Piccolroaz, A. (2016) Thermo-mechanical response FEM simulation of ceramic refractories undergoing severe temperature variations. *Journal of the European Ceramic Society* **36**, 2329-2340.
 36. Argani, L.P., Misseroni, D., Piccolroaz, A., Vinco, Z., Capuani, D., Bigoni, D. (2016) Plastically-driven variation of elastic stiffness in green bodies during powder compaction: Part I Experiments and elastoplastic coupling. *Journal of the European Ceramic Society* **36**, 2159-2167.
 37. Argani, L.P., Misseroni, D., Piccolroaz, A., Capuani, D., Bigoni, D. (2016) Plastically-driven variation of elastic stiffness in green bodies during powder compaction. Part II: Micromechanical modelling. *Journal of the European Ceramic Society* **36**, 2169-2174.
 38. Penasa, M., Argani, L., Misseroni, D., Dal Corso, F., Cova, M., Piccolroaz, A. (2016) Computational modelling and experimental validation of industrial forming processes by cold pressing of aluminum silicate powder. *Journal of the European Ceramic Society* **36**, 2351-2362.
 39. Bacigalupo, A., Morini, L., Piccolroaz, A. (2016) Overall thermomechanical properties of layered materials for energy devices applications. *Composite Structures* **157**, 366-385.
 40. Swan, M.S., Piccolroaz, A., Bigoni, D. (2016) Application of tomographic reconstruction techniques for density analysis of green bodies. *Ceramics International* **43**, 749-754.
 41. Wrobel, M., Mishuris, G., Piccolroaz, A. (2016) Energy release rate in hydraulic fracture: Can we neglect an impact of the hydraulically induced shear stress?. *International Journal of Engineering Science* **111**, 28-51.
 42. Piccolroaz, A., Movchan, A.B., Cabras, L. (2017) Dispersion degeneracies and standing modes in flexural waves supported by Rayleigh beam structures. *International Journal of Solids and Structures* **109**, 152-165.
 43. Piccolroaz, A., Movchan, A.B., Cabras, L. (2017) Rotational inertia interface in a dynamic lattice of flexural beams. *International Journal of Solids and Structures* **112**, 43-53.
 44. Cabras, L., Movchan, A.B., Piccolroaz, A. (2017) Floquet-Bloch waves in periodic networks of the Rayleigh beams: honeycomb systems, dispersion degeneracies and structured interfaces. *Mechanics of Solids, A Journal of Russian Academy of Sciences* **5**, 93-108.
 45. Perkowska, M., Piccolroaz, A., Wrobel, M., Mishuris, G. (2017) Redirection of a crack driven by viscous fluid. *International Journal of Engineering Science* **121**, 182-193.
 46. Bigoni, D., Bordignon, N., Piccolroaz, A., Stupkiewicz, S. (2018) Bifurcation of elastic solids with sliding interfaces. *Proceedings of the Royal Society A* **474**:20170681.
 47. G. Bordiga, L. Cabras, D. Bigoni, A. Piccolroaz (2018) Free and forced wave propagation in a Rayleigh-beam grid: flat bands, Dirac cones, and vibration localization vs isotropization, *International Journal of Solids and Structures* **161**, 64-81.

48. G. Bordiga, L. Cabras, A. Piccolroaz, D. Bigoni (2019) Prestress tuning of negative refraction and wave channeling from flexural sources. *Applied Physics Letters* **114**, 041901.
49. D. Kempen, A. Piccolroaz, D. Bigoni (2019) Thermomechanical modelling of ceramic pressing and subsequent sintering. *International Journal of Mechanical Sciences*, **156**, 146-158.
50. M. Wrobel, A. Piccolroaz, P. Papanastasiou, G. Mishuris (2019) Redirection of a crack driven by viscous fluid taking into account plastic effects in the process zone, *Geomechanics for Energy and the Environment*, In Press.
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