

CURRICULUM VITAE

(short version)

Patrizia Trovalusci



PERSONAL WEB-PAGE: <http://dsg.uniroma1.it/trovalusci/>

RESEARCH GROUP WEB PAGE:

<https://sites.google.com/a/uniroma1.it/multiscale-and-multiphysics-modelling-for-complex-materials/>

Email: patrizia.trovalusci@uniroma1.it

Dep. Structural and Geotechnical Engineering, V. Gramsci 53, 00197 Rome

ACADEMIC BACKGROUND AND POSITION

- 2016 Full Professor Sapienza, Univ. of Rome
- 2013 Full Professor (Nat. Academic Qualification)
- 2000 Associate Professor, Sapienza, Univ. of Rome
- 1992 Assistant Professor, Sapienza, Univ. of Rome
- 1992 PhD in 'Structural Architecture', Univ. of Florence
- 1992 Research Fellow 'Ist. Scienza delle Costruzioni', Sapienza, Univ. of Rome
- 1987 Laurea in Architecture (Cum Laude), Sapienza, Univ. of Rome

RESEARCH AREAS

131 publications in peer-reviewed scientific journals, books, conference proceedings and reports on: non-classical continua; multiscale modelling, masonry materials and structures; composites; plasticity theory, non-standard limit analysis; non-linear finite element analysis; structural architecture.

H index 12 (Scopus), 12 (ISI-WOS); Tot cites. 357 (Scopus), 385 (ISI-WOS); Most cited papers: 46, 44, 41, 41 (Scopus); 39, 39, 38, 37 (ISI-WOS). 1 Highly cited paper 2015 (ISI-WOS)

SCIENTIFIC COMMITTEES MEMBERSHIP

- 2014 - Sci. Comm. 'Associazione Italiana di Meccanica Teorica e Applicata' (AIMETA)
- 2014- Board of Directors of 'Centro Ricerca Scienza Tecnica per la Conservazione Patrimonio Storico-Architettonico' (CISTeC),
- 2013 - Sci. Comm. of Computational and Structural Mechanics Ass. (CSMA)
- 2013/16 - Sci. Comm. of 'Int. Conf. of Structures and Architecture' (ICSA)
- 2011/09/06 - Exec. Comm.; Advisory Comm.; Sci. Comm. of 'Int. Conf. Proc. Manufact. Advanced Materials' THERMEC;
- 2008- Board of PhD Program in 'Structural Engineering', Sapienza

SCIENTIFIC EVALUATION APPOINTMENTS

- 2013-- European Research Council. ERC Advanced Grants. External Referee
- 2009-- Georgia Nat. Science Foundation. External Referee
- 2000-- Evaluation Comm. for researcher positions

ORGANIZATION/CHAIR

- CONFERENCE:

- 2015, *On the "Tectonics" in Architecture: between Aesthetics and Ethics'* (TAAE'Rome). Chair.

- MINISYMPOSIA:

'*Multiscale and Multiphysics Modelling for Complex Materials*'

- 2016 - MMCM7-ICCM, Berkeley (CA, USA). Invited Coordinator, Key-Note speaker
- 2015 - MMCM6-ICCM, Auckland (New Zealand). Invited Coordinator, Key-Note speaker

- 2014 - MMCM5-WCCM, Barcelona (Spain). Invited Coordinator
- 2012 - MMCM4-ECCOMAS, Wien (Austria). Co-coordinator
- 2010 - M2CM2-ECCM, Paris (France). Principal Coordinator, Key-Note speaker
- 2009/2006 - MCM/MCM2-THERMEC, Vancouver (Canada); Berlin (Germany). Coordinator
'Computational multiscale and multifield modelling of composites'
- 2010 - WCCM/APCOM, Sidney (Australia). Co-coordinator
'On the "Tectonics" in Architecture: between Aesthetics and Ethics'
- 2016/13/10 TAAE3/TAAE2/TAAE3-ICSA, Guimarães (Portugal). Co-coordinator
- SPECIAL SESSIONS:
- 2016 - 'Mechanics of interfaces and evolving microstructures (including phase transformation and recrystallization)' - EMMC15, Bruxelles, (Belgium)
- 2015 - *History of Mechanics*, GAMM2015, *Gesellschaft für Angewandte Mathematik und Mechanik* . Co-coordinator.
- ADVANCED COURSES:
- 2012 - 'Multiscale Modelling of Complex Materials', CISM, Udine (Italy). Co-coordinator, Lecturer
- 2009 - 'Masonry Constructions. Seismic Safety, Conservation', Doctoral School of Engn. and Arch., Sapienza, Rome. Co-coordinator, Lecturer

EDITORIAL BOARDS

- 2012– *J Civil Engn. Sci.*
- 2010– *ISRN Mech. Engn. J.*

GUEST EDITORSHIP AND REVIEWING

- JOURNAL SPECIAL ISSUES:
- *Meccanica* (49(9), 2014).
- *Int J Multiscale Computational Engn.* (5(2), 2007; 9(5) 2011; 10(6) 2012)
- VOLUMES:
- *CISM Courses and Lectures* Series, Springer (International Centre of Mechanical Science, CISM),
- 'Springer Tracts in Mechanical Engineering' Series, Springer
- Reviewer for tens of International Journals and Books

FUNDINGS

Coordinator of Prin2010-11 - Sapienza Unit. Coordinator of several funded research projects (Sapienza Univ. Grants)

ACADEMIC INSTITUTIONAL APPOINTMENTS

◦ 2010– Coordinator of Bachelor Degree's Courses: 'Science of Architecture'; 'Techniques of Architecture and Construction'; 'Restoration and Conservation of Monuments'. School of Architecture, Sapienza, Univ. of Rome

TEACHING

◦ BSc, MSc Courses: 'Solid and Structural Mechanics', 'Statics', 'Behaviour of Masonry Materials in Historical Structures'; Coordinator of the Atelier of Ecological Islands and Recycling Centers. School of Architecture, Sapienza, Univ. of Rome



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CURRICULUM VITAE

<http://dsg.uniroma1.it/trovalusci>:<https://sites.google.com/a/uniroma1.it/multiscale-and-multiphysics-modelling-for-complex-materials/>
patrizia.trovalusci@uniroma1.it

Department of Structural Engineering and Geotechnics, 'Sapienza' University of Rome, V. Gramsci 53 – 00197 Rome

<ul style="list-style-type: none">Married with two sons.	Status
<ul style="list-style-type: none">1987 Laurea in Architecture <i>Cum Laude</i>, 'Sapienza' University of Rome1987-1992 Research Fellow, Department of Structural Engineering and Geotechnics, 'Sapienza' University of Rome.1992 PhD in <i>Structures and Architecture (History of Building Sciences and Techniques)</i>, University of Florence.1992 Assistant Professor of <i>Solids and Structural Mechanics</i>, 'Sapienza' University of Rome.2000 Associate Professor of <i>Solids and Structural Mechanics</i>, 'Sapienza' University of Rome.2013 National Academic Qualification as Full Professor of <i>Solids and Structural Mechanics</i>2016 Full Professor of <i>Solids and Structural Mechanics</i>, 'Sapienza' University of Rome.	Academic background and Position
<ul style="list-style-type: none">Continuum mechanics; non-classical continua; mechanics of masonry materials and structures; mechanics of composite materials; multiscale constitutive models; molecular theory of elasticity; elastic wave propagation; theory of plasticity and non-standard limit analysis; non-linear mathematical programming; non-linear finite element analysis; structural language of architecture.	Research Areas
<ul style="list-style-type: none"><i>Mechanical models for Lagrangian systems with non-linear behaviour</i>: (a) experimental analysis on block masonry walls; (b) finite element formulation for rigid blocks interacting through non-linear and non-conservative deformable elements; (c) limit analysis of (2D and 3D) rigid block structures with unilateral constraints and friction via mathematical programming.<i>Multiscale constitutive models for complex materials as multifield continua</i>: (a) constitutive functions for generalized continua; (b) block masonry materials as continua with rigid local structure; (c) damaged materials as continuous with affine microstructure (d) composite materials as three fields continua; (e) non-linear behaviour of masonry materials with internal structure.<i>The molecular theory of elasticity. Origins and current developments.</i><i>The "tectonic" or art of building</i>: the relations among mechanics (of solids and structures), mathematics and, historical and contemporary, architectural design.	Main Research Directions
<ul style="list-style-type: none">2003-2006 Scientific Committee of the <i>International Conference on Processing & Manufacturing of Advanced Materials (THERMEC06-09-11)</i>.	Scientific Committees

<ul style="list-style-type: none"> • 2006-2009 International Advisory Committee of <i>THERMEC09</i>. • 2008- Committee of the PhD Program in Structural Engineering, Department of Structural Engineering and Geotechnics, ‘Sapienza’ University of Rome. • 2008-2009 Scientific Steering Committee for the Advanced Course of <i>Masonry Constructions: Modelling, Seismic Safety and Conservation of common and monumental Buildings</i>, PhD in Structural Engineering and Doctoral School in Civil Engineering and Architecture, ‘Sapienza’ University of Rome • 2009-2011 International Executive Committee of <i>THERMEC11</i>. • 2010-2016 Scientific Committee of the 2nd and 3rd <i>International Conference on Structures and Architecture (ICSA2013, ICSA2016)</i>: http://www.icsa2013.arquitectura.uminho.pt). • 2012 Scientific Committee of the <i>Computational Structural Mechanics Association (CSMA 2013)</i>: http://csma2013.csma.fr/index.php?page=comites.php#csinternational), linked to the European Council of Computational Mechanics (ECCM) and the International Association for Computational Mechanics. • 2014 Scientific Committee of the Italian Association of Theoretical and Applied Mechanics (<i>AIMETA 2015</i>). • 2015 Scientific Advisory Committee of the 7th <i>International Conference on Computational Methods (ICCM 2016)</i>. (http://www.sci-en-tech.com/ICCM/Dropbox/GR-Raj-WebsiteOnly%20%281%29/2016committees.pdf). 	<p>Member ship</p>
<ul style="list-style-type: none"> • 2000- Member of several Selection Boards (for Assistant Professors, Research Assistants, Ph.D’s., etc.. Sapienza, Federico II Naples, Pisa). • 2009- Georgia National Science Foundation. Peer-reviewer. • 2013- Remote Referee for the European Research Council (ERC Advanced Grant 6th Call – 2013). 	<p>Scientific Evaluation Panels</p>
<ul style="list-style-type: none"> • 1992- Italian Association of Theoretical and Applied Mechanics (<i>AIMETA</i>). • 1994- European Mechanics Society (<i>EUROMECH</i>). • 2002- Italian Group of Computational Mechanics (<i>GIMC</i>). • 2010- European Community on Computational Methods in Applied Sciences (<i>ECCOMASS</i>). • 2013- Italian Group of Mechanics of Materials (<i>GMA</i>) • 2014- International Masonry Society (<i>IMS</i>) 	<p>Scientific Society Membership</p>
<ul style="list-style-type: none"> • 2010- Editorial Board Member of <i>ISRN Mechanical Engineering Journal</i> (http://www.isrn.com/journals/me/editors/, ISSN 2090-5122). • 2012- Editorial Board Member of <i>Journal of Civil Engineering and Science</i> (http://www.ij-ces.org/editorialBoard.aspx, ISSN: 2227-4634, 2227-4626). 	<p>Editorial Boards</p>
<ul style="list-style-type: none"> • 2006-2007 P. Trovalusci, ‘Multiscale Mechanical Modelling of Complex Materials and Engineering Applications’, Special Issue of <i>International Journal for Multiscale Computational Engineering</i>, 5(2) • 2009-2011 P. Trovalusci and M. Ostoja-Starzewski, ‘Multiscale Mechanical Modelling of Complex Materials and Engineering Applications 2’, Special Issue of <i>International Journal for Multiscale Computational Engineering</i>, 9(5). • 2010-2012 P. Trovalusci and B. Schrefler, ‘Multiscale Mechanical Modelling of Complex Materials and Engineering Applications 3’, Special Issue of <i>International Journal for Multiscale Computational Engineering</i>, Special Issue of <i>International Journal for Multiscale Computational Engineering</i>, 10 (6). • 2012 - T. Sadowski and P. Trovalusci: <i>Multiscale and Multiphysics Modelling of Complex Materials. Phenomenological, theoretical and computational aspects</i>, CISM International Centre for Mechanical Sciences 556, ‘Courses and Lectures’ Series, Springer. (Authors: R. de Borst; G. Del Piero; S. Ghosh; M. Ostoja-Starzewski; T. Sadowski; R. Tarleja; P. Trovalusci..). • 2014 - T. Sadowski, P. Trovalusci, B. Schrefler, R. de Borst: ‘Multiscale and Multiphysics 	<p>Guest Editorship</p>

Modelling for Complex Materials', Special Issue of *Meccanica*, **49(9)**.

- 2015 - P. Trovalusci: 'Materials with Internal Structure. Multiscale and Multifield Modelling and Simulation.' Springer Tracts in Mechanical Engineering' Series. Springer. (Authors: R. de Borst; G. Del Piero; S. Ghosh; M. Ostoia-Starzewski; T. Sadowski; R. Tarleja; P. Trovalusci.)

- *Advanced Powder Technology, Computer and Geotechnics; Applied Mathematical Modelling Engineering Fracture Mechanics; Engineering Structures; International Journal of Architectural Heritage; European Journal of MechanicsA/Solids; International Journal for Numerical Methods in Engineering; International Journal of Mechanical Sciences; International Journal for Multiscale Computational Engineering; Journal of Civil Engineering and Science; Journal of Mechanics of Materials and Structures; International Journal of Solids and Structures; Journal of Structural Engineering; Meccanica.*
- *Mc-Graw-Hill, Città Studi (Utet).*

**Reviewer
Journals /
Books**

- 2006 Coordinator of the Mini-symposium: *Multiscale Mechanical Modelling of Complex Materials and Engineering Applications*, within the International Conference on Processing & Manufacturing of Advanced Materials (MCM-THERMEC06), Vancouver (Canada), July 4-8.
- 2009 Principal Coordinator of the Mini-symposium: *Multiscale Mechanical Modelling of Complex Materials and Engineering Applications-2*, within the International Conference on Processing & Manufacturing of Advanced Materials (MCM2-THERMEC09), with M. Ostoia-Starzewski, Berlin (Germany), August 25-29 (<http://thermec.uow.edu.au/>).
- 2010 Principal Coordinator of the Symposium: *Multiscale and Multiphysics Computational Methodologies for Complex Materials*, within the 4th European Conference on Computational Mechanics (M2CM2-ECCM2010), with T. Sadowski, V. Sansalone and B. Schrefler, Paris (France), May 16-21.
- 2010 Coordinator of the Mini-symposium *On the "Tectonics" in Architecture: between Aesthetics and Ethics*, within the 1st International Conference on Structures & Architecture (TAAE-ICSA2010). University of Minho, Guimarães (Portugal), July 21-23.
- 2010 Co-coordinator of the Mini-symposium: Computational multiscale and multifield modelling of composites, within the 9th World Congress on Computational Mechanics and 4th Asian Pacific Congress on Computational Mechanics (WCCM-APCOM), July 19-23, Sydney (Australia). With D. Boso, B. Schrefler.
- 2011-2012 Co-coordinator of the Mini-symposium on *Multiscale and Multiphysics Modelling for Complex Materials*, within the European Congress on Computational Methods in Applied Sciences and Engineering (MMCM4-ECCOMAS2012), with T. Sadowski, R. de Borst, B. Schrefler, Wien, September 10-14.
- 2011-2013 Principal Coordinator (Invited) of the Mini-symposium *On the "Tectonics" in Architecture: between Aesthetics and Ethics 2*, with M. A. Chiorino, within the 2nd International Conference on Structures & Architecture (TAAE2-ICSA2013). University of Minho, Guimarães (Portugal), July 24-26.
- 2012-2014 Principal Coordinator of the Mini-symposium on *Multiscale and Multiphysics Modelling for Complex Materials*, within the 11th World Congress on Computational Mechanics (WCCM XI), the 5th European Conference on Computational Methods (ECCM V) and the 6th European Conference on Computational. Fluid Dynamics (ECFD VI), (MMCM5-WCCM2014), Barcelona (Spain) 20-25. At the Invitation of the Chairpersons E. Oñate, X. Oliver, A. Huerta. With T. Sadowski, B. Schrefler, R. de Borst.
- 2014-2015 Principal Coordinator of the Mini-symposium on *Multiscale and Multiphysics Modelling for Complex Materials*, within the 6th International Conference on Computational Methods (MMCM6-ICCM2015), Auckland (New Zealand), July 14-17. Invited by the Onorary Chairman G.R. Liu. With B. Schrefler.
- 2014-2015 Co-coordinator of the Special Session on *History of Mechanics*, Annual Meeting *Gesellschaft für Angewandte Mathematik und Mechanik* (GAMM2015), Lecce,

**Organization
Chair**

**Conferences/
Minisimposia/
Special
Sessions**

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- Italy, March 23-27. Invited by the chairman G. Zavarise. With D. Capecchi, E. Stein.
- 2014-2015 Chairman of the Conference: *On the "Tectonics" in Architecture: between Aesthetics and Ethics (TAAE2'Roma)*. Sapienza University of Rome, School of Architecture, Rome, June 11-13.
 - 2014-2016 Principal Coordinator (Invited) of the Mini-symposium *On the "Tectonics" in Architecture: between Aesthetics and Ethics 3*, with E. Siviero, within the 3rd International Conference on Structures & Architecture (TAAE3-ICSA2016). University of Minho, Guimarães (Portugal), July 27-29.
 - 2014-2015 Principal Coordinator of the Mini-symposium on *Multiscale and Multiphysics Modelling for Complex Materials*, within the 7th International Conference on Computational Methods (MMCM7-ICCM2016), Berkeley (CA, USA), August 1-4. Invitation by the Onorary Chairman G.R. Liu. With B. Schrefler.
 - 2015-2016 Co-coordinator (Invited) of the Special Session on *Mechanics of Interfaces and Evolving Microstructures (including Phase Transformation and Recrystallization)*, within 15th European Mechanics of Materials Conference (EMMC15), Bruxelles (Belgium), September 7-9. With R. Logé (EPF Lausanne, Switzerland).
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- 2008 *Two lectures on theories of DNA elasticity: A rapidly evolving branch of the new discipline called Bio-Mechanics*, Seminars by B. C. Coleman (Rutgers University): School of Engineering, 'Sapienza' University of Rome, July 16, 18.
 - 2009 *Masonry Constructions. Modelling, Seismic Safety and Conservation of common and monumental Buildings*. Advanced course (coordinated by L. Decanini). Doctoral School of Engineering and Architecture, 'Sapienza' University of Rome, July, October, November .
 - 2011 *Fractal Geometry of Materials versus Continuum Mechanics*, seminar by M. Ostoja-Starzewski (Urbana University of Illinois): School of Engineering, 'Sapienza' University of Rome, June 10.
 - 2012 *Multiscale Modelling of Complex Materials*, Advanced Course at International Centre for Mechanical Sciences (CISM), May 21-25, with T. Sadowski (Lublin University of Technology). Lecturers: G. del Piero (Univ. of Ferrara, Italy); S. Ghosh (Johns Hopkins Univ., MD, USA); M. Ostoja-Starzewski, Univ. Of Illinois at Urbana-Champaign, IL, USA; Ramesh Tarleja – Texas A&M University, TX, USA), T. Sadowski, P. Trovalusci.
 - 2014 *Spherically convergent shear waves during blunt head trauma fractals; Randomness in mechanics of materials*, seminars by M. Ostoja-Starzewski (Urbana University of Illinois), March 14.
 - 2015 Course: *Deformation Mechanisms and Modeling Methods in Mechanics of Materials*. by C. R. Picu, Rensselaer Polytechnic Institute, Troy, New York (USA), PhD Program in Structural Engineering, 'Sapienza University of Rome, May-June.
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- 1990 *La meccanica delle strutture in muratura; il calcolo a rottura per strutture a blocchi con contatti unilaterali con attrito finito; la statica dei sistemi voltati; la storia dei modelli proposti nel XVIII e nel XIX secolo per l'analisi delle fabbriche murarie*. Series of lectures and seminars, School of Architecture, 'Sapienza' University of Rome (invitation by A. Giuffré). January-June.
 - 1991 *Sperimentazione e modellazione numerica di pannelli murari*. Seminar, School of Engineering, University of Rome 'Tor Vergata' (Invitation by M. Como).
 - 1993 *Sulla modellazione dei mezzi murari come sistemi dotati di struttura*. Seminar, School of Engineering, University of Pisa (invitation by S. Bennati). October.
 - 1994 *I metodi dei vincoli interni e del riscaldamento per lo studio dei gusci elastici di spessore sottile*, School of Engineering 'Sapienza' University of Rome (Invitation by N. L. Rizzi). February-May.
 - 1994 *Murature a blocchi come continui dotati di struttura*. Seminar, School of Engineering, University of Rome 'Tor Vergata', (invitation by P. Podio-Guidugli). November.
 - 1998 *A molecular approach in the derivation of the constitutive equations for continua*

**Advanced
Courses,
Seminars
organized
(selected)**

**Conferences/
Lectures/
Keynotes/
Invited Talks
Seminars
(selected)**

- with microstructure*. Seminar, Yale University, CN, New Haven, USA (invitation by E. T. Onat), July.
- 1998 *Continui multi-campo per la modellazione di mezzi murari ed altri materiali eterogenei*. Seminar, School of Engineering, University of Calabria, October. (Invitation by R. Casciaro).
 - 2001 *Continuum micropolar modelling of discontinuous masonry-like systems*, 6th Nat. Congr. on Mechanics, Thessaloniki (Greece). (Invitation by E. Aifantis, Aristotle University of Thessaloniki).
 - 2003 *Elastic waves in microcracked bodies as multi-field materials*, 5th *European Solid Mechanics Conf.*, Thessaloniki (Greece). (Invitation by E. Aifantis, Aristotle University of Thessaloniki).
 - 2008 *Multiscale-multifield models for the mechanical description of 'complex' materials: origins and current developments*. Seminar, School of Engineering University of Genoa. (Invitation by L. Gambarotta). May 29.
 - 2008 Conference: *The Structural Conception in Architecture. Reflections on the relations among the art of building, structural mechanics, mathematics and architectural design*. 1. The constructive dimension (influence of structural language in 'making' architecture); 2. The mathematical dimension (influence of mechanic-mathematic language in architectural design), Conference. School of Architecture, University of Genoa, (invitation by L. Gambarotta). May 30.
 - 2009 Conference: *Mechanical Models for historic masonry*. July 17. Course Lectures: 1. Notes on the mechanical modelling of masonry. 2. Mechanical models for masonry. 3. Masonry as discontinuous system. 4. Masonry as multiscale/multifield continuum. 5. Origins of the collapse analysis. Elasto-plastic materials. Limit analysis for discrete systems, 4. ALMA, A computer code for the Limit Analysis of Frictional Masonry. Lectures for the advanced course of *Masonry Constructions. Modelling, Seismic Safety and Conservation of common and monumental buildings*. School of Engineering and Architecture, Sapienza' University of Rome, July, October, November.
(http://w3.disg.uniroma1.it/corsomuratura09/index.php?option=com_content&task=view&id=26&Itemid=49, password: CFSM09-PATTROVA).
 - 2009 *A multiscale-multifield approach to 'complex' materials: theoretical modelling and computational results*, 18th Conference on 'Computer Methods in Mechanics', Zielona-Gora (Poland), May. Invited presentation (by T. Sadowsky, Lublin University of Technology).
 - 2010 *A generalized Voigt's approach to multiscale-multifield modelling of "complex" materials*, IV European Conference on Computational Mechanics, Paris, May. Key-note lecture (invitation by B. Schrefler, University of Padua).
 - 2011 *La concezione strutturale in architettura. Il recupero di un'etica 'tettonica' attraverso la lezione di P.L. Nervi*. two lectures in:
 - Workshop "Pier Luigi Nervi: l'approccio globale al progetto di architettura", Palazzetto dello Sport – Flaminio, Roma, February 17 (Invitation by G. Rega, Sapienza-University of Rome);
 - Workshop "Pier Luigi Nervi – Arte e scienza del costruire", Accademia delle Scienze, Torino, May 2. (Invitation by M. A. Chiorino, Torino Polytechnic).
 - 2011 *Materials with Flaws and Inclusions: Non-Classical Discrete-Continuum Description*, International Conference on Material Modelling (ICCM2), École des Mines, Paris, August. Invited presentation (by S. Forest, Mines - Paris Tech).
 - 2012 *Molecular approaches for multifield continua. Origins and actual developments with applications to fibre composites and masonry-like materials*. 1. 19th Century molecular models 3. A mention to modern discrete-continuum theories. 3. Multifield continua 4. A Molecular/multifield approach for composites. Lectures for the CISM Course 'Multiscale Modelling of Complex Materials', Udine, May 21-25.
 - 2013 *Generalized continua for discontinuous complex materials. A Voigt-like approach using the principle of virtual works*, International Conference on Material Modelling (ICCM3), Warsaw (Poland), August. Invited presentation (by S. Forest, Mines - Paris

Tech).

- 2014 *Molecular approaches for multifield continua: origins and actual developments with applications to fibre composites and masonry-like materials*. Seminar, School of Engineering Polytechnical University of Marche (invitation by S. Lenci). March 24.
- 2014 *Discrete-to-continuum approaches for complex materials as ‘non-simple’ continua*, Invited talk at Conv. Meccanica Computazionale e Meccanica dei Materiali (GIMC-GMA), Cassino, June 13.
- 2014 *The recovery of the ethic of constructions: P. L. Nervi vs. S. Musmeci, two structural conceptions compared*. Invited Lecture (by L. Gambarotta). 1st International Symposium ‘Form After Form’. School of Architecture, University of Genoa. September 22.
- 2014 *Molecular approaches for multifield continua: origins and actual developments with applications to fibre composites and masonry-like materials*. Seminar, University of Padua, (invitation by B. Schrefler). November 24.
- 2015 *Discrete to scale-dependent continua for complex materials. A generalized Voig approach using the principle of virtual power*, Euromech Colloquium 557, Stuttgart (Germany), Key-note presentation, March 2 (invitation by the Chair S. Schmauder, University of Stuttgart).
- 2015 *Considerazioni sulla modellazione meccanica per la muratura storica*. XX anniversary of ‘Centro di Ricerca Scienza e Tecnica per la Conservazione del Patrimonio Storico-Architettonico’ (CISTeC), School of Engineering, April 17.
- 2015 Conference: *Verso il recupero di un’etica tettonica in architettura: la dimensione tecnologica e la dimensione matematica. Nervi e Musmeci due concezioni strutturali a confronto*. Polytechnical University of Marche School of Civil Engineering and Architecture (invitation by G. Mondaini), April 22.
- 2015 *Coarse-graining approaches for particulate composites as micromorphic continua*, 6th International Conference on Computational Methods (ICCM2015), Key-note presentation, Auckland, New Zealand, July 16 (invitation by the onorary Chairman G.R. Liu, President of Asia-Pacific Association for Computational Mechanics (APACM) Ohio University), 14-17 July.
- 2015 *Non-classical molecular approaches of Nineteenth century: the first step towards discrete-to-non-local field models*. Invited talk at Congr Naz AIMETA, Genova 2015, September 15.
- 2016 *Statistically-based homogenization procedure for random composite materials*. Key-note presentation, Berkeley (CA, USA), August 1-4. Invitation by the Onorary Chairman G.R. Liu. (To be held on August, 2016).

- Highly Cited Award 2015 from ISI-WEB of Knowledge for the paper [A28]

Awards

- International (EU) Research Grants

2010-2013 "Centre of Excellence for Modern Composites Applied in Aerospace and Surface Transportation", coordinated by T. Sadowski, Department of Solid Mechanics (Lublin University of Technology, Poland: EU grant No. FP7-245479). Participant.

- MIUR-PRIN National Government Grants

2007 "Modellazione ed analisi, su base prestazionale, di strutture non lineari", coordinated by R. Casciaro (University of Calabria, Italy). Participant.

2012 “Models and algorithms for the nonlinear analysis of structures and the validation of performance-based design rules”, coordinated by R. Casciaro (University of Calabria). Coordinator of the Research Unit of Rome-Sapienza.

- MIUR-FIRB, National Government Grants

2007 New trends for multiscale-multifield analysis of composite materials. Phenomenological, theoretical and computational approaches, coordinated by M.L. De Bellis (‘Sapienza’ University of Rome). Grant application. (Project selected for the national competition). Participant.

- MIUR National Government Grants, ‘Sapienza’ University of Rome

**Funding ID
EU**

**MIUR
Government**

University

2001 "Modelli costitutivi lineari e non-lineari per materiali da costruzione innovativi e tradizionali", coordinated by R. Masiani. Participant.

2002-2003 "Architetture monumentali ed edifici in muratura. Modelli statici e modelli dinamici per la risposta sismica", coordinated by R. Masiani. Participant.

2005-2006 "Analisi statica e dinamica del comportamento sismico delle costruzioni in muratura", coordinated by R. Masiani. Participant.

2007-2008 "Analisi sismica delle costruzioni murarie esistenti: modelli per la valutazione del comportamento statico e dinamico", coordinated by R. Masiani. Participant.

2010 "Modelli multiscala-multicampo per lo studio di materiali compositi. applicazioni all'ingegneria e all'architettura". Coordinator.

2011 "Materiali compositi nell'ingegneria e nell'architettura: modelli costitutivi multiscala-multicampo per la descrizione della risposta strutturale statica e dinamica. Coordinator.

2013 "Modelli meccanici avanzati per l'analisi di mezzi compositi: aspetti fenomenologici, teorici e computazionali". Coordinator.

2013 Funding for Conferences: "On the 'Tectonics' in Architecture: between Aesthetics and Ethics (TAAE3), an International Symposium". Coordinator.

- MIUR National Government Grants, Federated University Humanities, Arts and Environment, 'Sapienza' University of Rome

2007-2008 "Modelli meccanici per la muratura storica: aspetti costitutivi e sicurezza strutturale". Coordinator.

2009 "Modelli multiscala-multicampo per la descrizione meccanica di materiali "complessi": origini e sviluppi attuali". Coordinator.

- MIUR National Government Grants, School of Architecture, 'Sapienza' University of Rome

2000-2001 " Architetture storiche: modelli meccanici e sicurezza strutturale ". Coordinator.

2002-2003 "Fabbriche murarie d'interesse storico e monumentale: modelli per l'analisi e il progetto strutturale". Coordinator.

2004-2005-2006 "Modelli costitutivi con microstruttura per lo studio di materiali innovativi nell'architettura", Coordinator.

- MURST, National Government Grants

1996-2000. National Government Grants, School of Architecture, 'Sapienza' University of Rome: other financed researches.

Faculty

2011- President of the Bachelor Degree Courses ('Sapienza' University of Rome, School of Architecture) in:

- *Sciences of Architecture;*
- *Architecture and Building Techniques;*
- *Restoration and Conservation of Historical Architectures;*
- *Interior Desig and Furniture*

- 1995-2005 Scientific Coordinator in charge of the Department Library, Department of Structural Engineering and Geotechnics, 'Sapienza' University of Rome.

- 2000-2006 Member of the Research Grant Committee, School of Architecture, 'Sapienza' University of Rome.

- 2003 Member of the Faculty Board of Governors, School of Architecture, 'Sapienza' University of Rome.

- 2000-2007 Member of the Department Board of Governors, Department of Structural Engineering and Geotechnics, 'Sapienza' University of Rome.

- 2005- Member of the Teaching Advisory Board Committee, School of Architecture, 'Sapienza' University of Rome.

- 2007-2009 Member of the Faculty Financial Resources Committee, School of Architecture, 'Sapienza' University of Rome.

- 2010-2011 Member of the Faculty Committee for the 'Development, Communication and Coordination of Cultural Activities', School of Architecture, 'Sapienza' University of

**Academic
Institutional
Appointments**

**Service
Appointments**

Rome.

- 2014- Member of the Executive Board of 'Centro di Ricerca Scienza e Tecnica per la Conservazione del Patrimonio Storico-Architettonico', 'Sapienza' University of Rome.

- 12 (Scopus); 12 (ISI-WOS)
- 8 (Scopus)
- 385 (Scopus)
- 11.735 (Scopus)
- 46, 44, 41, 41 citations.

h-index
h-contemp.
N. Tot Cits.
Average Cit.
4 Most cited papers

- 1992 - *Solid and Structural Mechanics*.
- 2001-2004 *Statics*.
- 2005 -2009 *Mechanics of Historical Masonry*
- 2014- *Degree Ateliers of Recycling*

Teaching

MSc Degree Courses in: Architecture UE; Architecture/Restoration and Bachelor Degrees in: Sciences of Architecture; Architecture and Building Techniques; Restoration and Conservation of Achitectoral Heritage. School of Architecture, 'Sapienza' University of Rome.

- 2008-2013 *Historical Masonry as Complex Material: Micropolar Modelling of Periodic and Random Assemblies*. PhD Thesis in Structural Engineering, by A. Murrari, 'Sapienza' University of Rome. In the final progress. The research featured the collaboration of Prof. M. Ostoja Starzewski and stochastic support of dr. S. Marcelli (Banca d'Italia); the thesis has been completed at the École des Mines (Prof. S. Forest) and École des Ponts (Prof. Karam Sab).
- 2010-2015 *Comportamento di colonne in calcestruzzo consolidate o confinate con polimeri fibro-rinforzati soggette a carichi termici variabili* . PhD thesis in Structural Engineering, by M. Ramondetta , 'Sapienza' University of Rome. To be discussed October 23.
- 2015 - Advanced Mechanical Models for the Analysis of Composite Media: Phenomenological, Theoretical and Computational Aspects. A. Favata, Post-doc Research Grant
- 2015 - *Implementation of Computational Models and Simulations for the Study of Materials with Microstructure*. E. Reccia, Post-Doc Research Grant, Department of Structural Engineering and Geotechnics, 'Sapienza' University of Rome.
- 2015 - *Investigation of Thermo-Mechanical Properties of Fibre-Reinforced Porous Materials*. Post-Doc Research Grant, F. Sbardella, Department of Structural Engineering and Geotechnics, 'Sapienza' University of Rome.

**Phd Thesis/
Research
Assistants
supervision**

- 2003 'Fabbriche murarie di interesse storico: modelli per l'analisi strutturale', MSc thesis in *Architecture* UE, by S. Martorana, School of Architecture, 'Sapienza' Univerisity of Rome.
- 2003 'L'uso di modelli matematici nella creazione di nuove forme per l'architettura', MSc Degree in *Architecture* UE, by G. Ruggeri, School of Architecture, 'Sapienza' University of Rome.
- 2005 'Il calcolo a rottura per la muratura in *opus quadratum*: il caso del Ponte Loreto nella campagna lanuvina', MSc Degree in *Architecture-Restoration*, by G. Caldarelli, School of Architecture. 'Sapienza' Univerisity of Rome.
- 2008 "Strutturisti-Costruttori, Strutturisti-Matematici, Architetti-Strutturisti. Il ruolo della matematica nell'invenzione di architetture resistenti per forma", MSc Degree in *Architecture-Restoration*, by I. Pallai. School of Architecture, 'Sapienza' University of Rome.
- 2008 'Strutturisti-Costruttori, Strutturisti-Matematici, Architetti-Strutturisti. L'evoluzione della 'concezione strutturale' nella progettazione delle cupole nell'età moderna', MSc Degree in *Architecture-Restoration*, by A. Ulivi. School of Architecture, 'Sapienza'


**Honour
MSc-BSc
Thesis
supervision
(selected)**

Univerisity of Rome.

- 2010 'Il castello Eurialo a Siracusa: un approccio interdisciplinare per la conservazione e la valorizzazione', MSc Degree in *Architecture-Restoration*, by M. Ramondetta, School of Architecture, 'Sapienza' University of Rome.
- 2012 'I dissesti strutturali delle Mura Aureliane: un approccio interdisciplinare per la conservazione', Bachelor Degree in *Restoration and Conservation of Historical Architectures*, by M. Doria, School of Architecture, 'Sapienza' University of Rome.
- 2013 'Matematica e Architettura. Ottimizzazione strutturale e invenzione della forma', Bachelor Degree in *Architecture and Building Techniques*, by F. Pilla, School of Architecture, 'Sapienza' University of Rome.
- 2013 'Studio meccanico di archi in muratura. Il caso dei cunicoli di Claudio nel bacino del lago Fucino', Bachelor Degree in *Sciences of Architecture*, by S. Iarussi, School of Architecture, 'Sapienza' University of Rome.
- 2014 'Modelli Matematici in Architettura. Origini e Sviluppi Attuali'. Bachelor Degree in *Sciences of Architecture*, by S. Vadidar, School of Architecture, 'Sapienza' University of Rome.
- 2014- Tens of thesis from Atelier on 'Aecological Island and Recycling Centres' in collaboration with AMA Roma (Environment Municipal Company of Rome)

19 May 2016

Patrizia Trovalusci



List of publications

A. Journal Articles

- [A1] R. Masiani, N. Rizzi, P. Trovalusci, Masonry as structured continuum, *Meccanica*, **30**, 1995, 673-683 (DOI: 10.1007/BF00986573; WOS:A1995TL29400002; Scopus: 0000741917).
- [A2] R. Masiani, P. Trovalusci, Cosserat and Cauchy materials as continuum models of brick masonry, *Meccanica*, **31**, 1996, 421-432 (DOI: 10.1007/BF00429930; WOS:A1996VD52700004; Scopus: 0030214344).
- [A3] P. Trovalusci, R. Masiani, Strain rates of micropolar continua equivalent to discrete systems, *Meccanica*, **32(6)**, 1997, 581-583 (DOI: 10.1023/A:1004252426652; WOS:000071327400011; Scopus: 2342646882).
- [A4] C. Baggio, P. Trovalusci, Limit analysis for no-tension and frictional three-dimensional discrete systems, *Mechanics of Structures and Machines*, **26** (3), 1998, 287-304 (DOI: 10.1080/08905459708945496; WOS:000075964000004; Scopus:0032141962).
- [A5] P. Trovalusci, G. Augusti, A continuum model with microstructure for materials with flaws and inclusions, *Journal de Physique IV*, 1998, **Pr8** 383-390 (DOI: 10.1051/jp4:1998847; WOS:000077547500048 N.Cit 9(11); Scopus: 11744307640).
- [A6] P. Trovalusci, R. Masiani, Material symmetries of micropolar continua equivalent to lattices, *International Journal of Solids and Structures*, **36(14)**, 1999, 2091-2108 (DOI: 10.1016/S0020-7683(98)00073-0; WOS:000078639000004; Scopus: 0002317252).
- [A7] P. M. Mariano, P. Trovalusci, Constitutive relations for elastic microcracked bodies: from a lattice model to a multifield continuum description, *International Journal of Damage Mechanics*, **8**, 1999, 153-173 (DOI:10.1177/105678959900800204; WOS:000208663400003; Scopus: 0033108021).
- [A8] C. Baggio, P. Trovalusci, Collapse behaviour of three-dimensional brick-block systems using non linear programming, *Structural Engineering and Mechanics*, **10(2)**, 2000, 181-195 (WOS:000088722900007; Scopus: 0033714509).
- [A9] G. Rega, P. Trovalusci, Strutturisti-costruttori, strutturisti-matematici e...architetti-strutturisti?, Riflessioni sulle relazioni tra l' "arte del costruire", la meccanica (dei solidi e delle strutture) e la progettazione strutturale nell'architettura, *Rassegna di Architettura e Urbanistica*, **101/102**, 2001, 134-143.
- [A10] P. Trovalusci, R. Masiani, Non-linear micropolar and classical continua for anisotropic discontinuous materials, *International Journal of Solids and Structures*, **40(5)**, 2003, 1281-1297 (DOI: 10.1016/S0020-7683(02)00584-X; WOS:000181264500012; Scopus: 0037372584).
- [A11] P. Trovalusci, A multiscale continuum for damaged fibre composites, *Materials Science Forum*, **426-432**, 2003, 2133-2138 (DOI: 10.4028/www.scientific.net/MSF.426-432.2133; WOS:000183626400340; Scopus: 0038677535).
- [A12] P. Trovalusci, R. Masiani, A multi-field model for blocky materials based on multiscale description, *International Journal of Solids and Structures*, **42** (21-22), 2005, 5778-5794 (DOI: 10.1016/j.ijsolstr.2005.03.027, WOS:000231437200011; Scopus: 23244457174).
- [A13] V. Sansalone, P. Trovalusci, F. Cleri, Multiscale modelling of composite materials by a multifield finite element method, *International Journal for Multiscale Computational Engineering*, **3(4)**, 2005, 463-480 (DOI: 10.1615/IntJMCompEng.v3.i4.20; WOS:000236605800005).

- [A14] V. Sansalone, P. Trovalusci, F. Cleri,
Multiscale modelling of materials by a multifield approach: microscopic stress and strain distribution in fiber-matrix composites, *Acta Materialia*, **54**, 2006, 3485-3492 (DOI: 10.1016/j.actamat.2006.03.041; WOS:000239823800009; Scopus: 33745898253).
- [A15] P. Trovalusci, V. Sansalone, F. Cleri,
A multiscale approach for composite materials as multifield continua, *Materials Science Forum*, **539-543**, 2007, 2551-2556 (DOI: 10.4028/www.scientific.net/MSF.539-543.2551; WOS:000245106102069; Scopus: 38349160241).
- [A16] P. Trovalusci, G. Rega,
Elastic waves in heterogeneous materials as in multiscale-multifield continua, *Proceedings of the Estonian Academy of Sciences Physics, Mathematics*, **56**, 2, 2007, 100–107 (WOS:000254909500005; Scopus: 34347379166).
- [A17] V. Sansalone, P. Trovalusci,
A numerical investigation of structure-property relations in fibre composite materials, *International Journal for Multiscale Computational Engineering*, **5(2)**, 2007, 141-152 (10.1615/IntJMultCompEng.v5.i2.70; WOS:000249442100008; Scopus: 34548383837 N.Cit 4; IF 0.76).
- [A18] P. Trovalusci, D. Capecchi, G. Ruta,
Genesis of the multiscale approach for materials with microstructure, *Archive of Applied Mechanics*, **79** (11), 2009, 981-997 (DOI: 10.1007/s00419-008-0269-7; WOS:000269845300001 Scopus: 70349434049).
- [A19] D. Capecchi, G. Ruta, P. Trovalusci,
From classical to Voigt's molecular models in elasticity, *Archive for History of Exact Sciences*, **64**, 2010, 525-559. (DOI: 10.1007/s00407-010-0065-y ; WOS:000280917200002; Scopus: 77955841696). Communicated by U. Bottazzini.
- [A20] P. Trovalusci, V. Varano, G. Rega,
A generalized continuum formulation for composite materials and wave propagation in a microcracked bar, *Journal of Applied Mechanics*, **77** (6), 2010, 061002-1/11. (DOI: 10.1115/1.4001639; WOS:000284078500003; Scopus: 78650006705).
- [A21] V. Sansalone, P. Trovalusci,
Coupling Continuum and Discrete Models of Materials with Microstructure: a Multiscale Algorithm, *Materials Science Forum*, **638-642**, 2010, 2755-2760 (10.4028/www.scientific.net/MSF.638-642.2755; WOS:000281043801122; Scopus: 75849152952).
- [A22] P. Trovalusci, V. Varano,
Microcracked materials as non-simple continua, *Materials Science Forum*, **638-642**, 2010, 2749-2754 (DOI:10.4028/www.scientific.net/MSF.638-642.2749; WOS:000281043801121; Scopus: 75849128830).
- [A23] P. Trovalusci, V. Varano,
Multifield continuum simulations for damaged materials: a bar with voids, *International Journal for Multiscale Computational Engineering*, **9(5)**, 2011, 599-608 (DOI: 10.1615/IntJMultCompEng.2011002761; WOS:000297823100008; Scopus: 81255149761).
- [A24] D. Capecchi, G. Ruta, P. Trovalusci,
Voigt and Poincaré's mechanistic-energetic approaches to linear elasticity and suggestions for multiscale modelling, *Archive of Applied Mechanics*, **81(11)**, 2011, 1573-1584 (DOI: 10.1007/S00419-010-0502-Z; WOS:000296084100005; Scopus: 82955242523).
- [A25] A. Pau, P. Trovalusci,
Block masonry as equivalent micropolar continua: the role of relative rotations, *Acta Mechanica*, **223** (7), 2012, 1455-1471 (DOI 10.1007/s00707-012-0662-8, WOS:000305679800008; Scopus: 84864564118).
- [A26] P. Trovalusci, A. Pau,
Derivation of microstructured continua from lattice systems via principle of virtual works. The case of masonry-like materials as micropolar, second gradient and classical continua. *Acta Mechanica*, **225** (1), 157-177, 2014, (DOI: 10.1007/s00707-013-0936-9, Scopus: 84881093014).
- [A27] P. Trovalusci, M. De Bellis, M. Ostoja-Starzewski, A. Murralli,
Particulate random composites homogenized as micropolar materials, *Meccanica* **49(11)**, 2719-2727, 2014 (DOI 10.1007/s11012-014-0031-x, WOS:000344354100012; Scopus: 84864564118).
- [A28] P. Trovalusci, M. Ostoja-Starzewski, M. L. De Bellis, A. Murralli,
Scale-dependent homogenization of random composites as micropolar continua, *European Journal of Mechanics A/Solids*. **49**, 396–407, 2015 (DOI 10.1016/j.euromechsol.2014.08.010,

WOS:000346542100034; Scopus: 84891862307. Highly Cited Award from ISI-WEB of Knowledge).

- [A29] P. Trovalusci,
Nineteenth century molecular models with a glance at modern discrete–continuum theories,
Proceedings in Applied Mathematics and Mechanics (PAMM), **15**, 709-710, 2015 (DOI 10.1002/pamm.201510344) (ISSN: 1617-7061).
- [A30] A. Favata, P. Trovalusci, R. Masiani,
A multiphysics and multiscale approach for modeling microcracked thermo-diffusive materials,
Computational Material Science, **116**, 22-31, 2015. (DOI: 10.1016/j.commatsci.2015.10.033; Scopus 2-s2.0-84947345459).

B. Volumes – Monographs - Special Issues

- [B1] P. Trovalusci (Ed.),
‘Multiscale Mechanical Modelling of Complex Materials and Engineering Applications’,
Special Issue of *International Journal for Multiscale Computational Engineering*, **5(2)**, 2007
(<http://www.begellhouse.com/journals/61fd1b191cf7e96f,25cc62a120ff4480.html>,
DOI: 10.1615/IntJMultCompEng.v5.i2; WOS:000249442100001).
Autors: P. Trovalusci; M. Ostoja-Starzewski, X. Du, Z.F. Khisaeva, W. Li; K. Sab, J. Dallot, A. Cecchi; V. Sansalone, P. Trovalusci; M.G.D. Geers, R.L.J.M. Ubachs, M. Erinc, M.A. Matin, P.J.G. Schreurs, W.P. Vellinga; V.G. Kouznetsova, M.G.D. Geers; F. Campi, I. Monetto; F. De Angelis; G. Borino, B. Failla, F. Parrinello).
- [B2] P. Trovalusci, M. Ostoja-Starzewski (Eds.),
‘Multiscale Mechanical Modelling of Complex Materials and Engineering Applications 2’,
Special Issue of *International Journal for Multiscale Computational Engineering*, **5 (9)**, 2011.
(<http://www.begellhouse.com/journals/61fd1b191cf7e96f,59ed44ee44c0572b.html>,
DOI: 10.1615/IntJMultCompEng.2011002870; WOS:000297823100001; Scopus: 81255188780).
Authors: P. Trovalusci, M.O. Starzewski; K. Sab; G. Geymonat, F. Krasucki, S. Hendili, M. Vidrascu, C. Chesnais, S. Hans, C. Boutin; A. Bacigalupo, L. Gambarotta, M. L. De Bellis, D. Addressi; M. Di Paola, Zingales, P. Trovalusci, V. Varano.
- [B3] P. Trovalusci, B. Schrefler (Eds.),
‘Multiscale Modelling for Materials with Internal Length’, Special Issue of *International Journal for Multiscale Computational Engineering*, **10(6)**, 2012.
(<http://www.dl.begellhouse.com/journals/61fd1b191cf7e96f,3089bea11cd334bd.html>, DOI: 10.1615/IntJMultCompEng.v10.i6; WOS:000312617700001; Scopus:84870218829).
Authors: P. Trovalusci, B. Schrefler; D. K. Trinh, R. Janicke, N. Auffray, S. Diebels, S. Forest; S. Bargmann, B. Svendsen; D. Grégoire, L. B. Rojas-Solano, G. Pijaudier-Cabot; M. Bongue Boma, L. Sudak, S. Federico; I. Stefanou, J. Sulem; E. Aigner, R. Lackner, J. Eberhardsteiner; D. P.Boso, M. Lefik.
- [B4] T. Sadowski, P. Trovalusci (Eds.),
Multiscale Modeling of Complex Materials. Phenomenological, Theoretical and Computational Aspects, Series: ‘Courses and Lectures’, CISM (International Centre for Mechanical Sciences) **556**, Springer, Berlin, 2014, pages 1-278. (ISBN 978-3-7091-1812-2, DOI 10.1007/978-3-7091-1812-2_3).
Authors: R. de Borst; G. Del Piero; S. Ghosh; M. Ostoja-Starzewski; T. Sadowski; R. Tarleja; P. Trovalusci..
- [B5] P. Trovalusci,
Molecular approaches for multifield continua: origins and current developments. In T. Sadowski, P. Trovalusci (Eds.), ‘Multiscale Modeling of Complex Materials: Phenomenological, Theoretical and Computational Aspects’, CISM (Int Centre for Mechanical Sciences) Series, **556**, Springer, Berlin, 2014, 211-278. (ISBN 978-3-7091-1811-5, DOI 10.1007/978-3-7091-1812-2).
- [B6] T. Sadowski, P. Trovalusci, B. Schrefler, R. de Borst (Eds),
‘Multiscale and Multiphysics Modelling for Complex Materials’, Special Issue of *Meccanica*, **49(9)**, 2014. (DOI 10.1007/s11012-014-0031-x; WOS:000344354100001; Scopus:84912027751).
Authors: A. Carpinteri, P.Cornetti, A.Sapora; O.Allix; R. de Borst; V.Petrova, T.Sadowski; V.Burlayenko, T.Sadowski; V. Eremeev; G.Papanicolaou; I. Ertürk, J.A.W. van Dommelen, M.G.D. Geers; J. Füssl, R. Lackner, J. Eberhardsteiner; K. Ammar, B. Appolaire, S. Forest, M. Cottura, Y. Le Bouar, A. Finel, P. Trovalusci, M.L. De Bellis, M. Ostoja-Starzewski, A.Murralli; a. J. M. Ferreira, C. M. C. Roque, J. N. Reddy.
- [B7] P. Trovalusci (Ed.),
Materials with Internal Structure. Multiscale and Multifield Modeling and Simulation, ‘Springer Tracts in Mechanical Engineering’, Springer Int. Publishing Switzerland, 2015, 1-132. (DOI 10.1007/978-3-319-21494-8; ISSN 2195-9862, 2195-9870 (electronic) ISBN 978-3-319-21493-1; 978-3-319-21494-8

(eBook). Invited by Springer.

Authors: G. Cailletaud, F. Coudon; R. de Borst, S. May, J. Vignollet; V. Eremeyev; S. Ghosh, P. Chakraborty; X. Li, Y. Liang, Y. Du, B. Schrefler; A. Malyarenko, M. Ostoja-Starzewski; C. R. Picu, S. Sorohan, D. M. Constantinescu, M. A. Soare; P. Trovalusci.

C. Articles in Books and Refereed Conference Papers

- [C1] P. Trovalusci,
Prevenzione sismica nei restauri ottocenteschi dell'Anfiteatro Flavio, Parte II: Analisi strutturale e formulazione matematica, in *Roma problemi dell'area archeologica centrale* (Boll. Biblioteca Fac. Arch. Univ. Roma 'La Sapienza', **40- 41**), Roma, Gangemi, 1989, 57-75 (ISBN: 887448304X).
- [C2] C. Baggio, P. Trovalusci,
Discrete models for jointed block masonry walls, in A. A. Hamid & H. G. Harris (eds.), *The Sixth North American Masonry Conference*, Vol. 2, Lancaster (PA), Technomic Publishing Co., 1993, 939-949. (Refereed conference paper. Presenting author). (ISBN: 0-8407-5159-1; WOS:A1996VD52700004 N.Cit 14).
- [C3] P. Trovalusci,
Sulla modellazione meccanica dei solidi murari, in A. Giuffrè (Ed.), *Sicurezza e conservazione dei centri storici. Il caso di Ortigia*, Bari, Laterza, 1993 (ISBN: 258-273. 8842042501).
- [C4] G. Augusti, S. D'Agostino, A. Giuffrè, M. Lanni, P. Trovalusci,
Problemi statici, in M. Cipriani, *L'Athenaion di Paestum tra studio e restauro*, Catalogo mostra documentaria, Museo Archeologico Nazionale, Paestum, 1993, 37-39.
- [C5] R. Masiani, P. Trovalusci,
Size effects in continuum modelling of brick masonry, in J. Middleton & G. N. Pande (eds.), *Computer Methods in Structural Masonry -3*, Swansea (UK), BIJ, 1995, 42-51. (Refereed conference paper. Presenting author). (ISBN: 1874149038).
- [C6] C. Baggio, P. Trovalusci,
Stone assemblies under in-plane actions. Comparison between non linear discrete approaches, in J. Middleton & G. N. Pande (Eds.), *Computer Methods in Structural Masonry -3*, Swansea (UK), BIJ, 1995, 184-193 (Refereed conference paper). (ISBN: 1874149038).
- [C7] P. M. Mariano, P. Trovalusci,
Inertial effects in elastic microcracked bodies, in L. Frýba e J. Nàprstek (Eds.), *Structural Dynamics Eurodyn '99*, Vol. 1, Prague, Balkema, 1999, 501-506. (Presenting author). (ISBN: 90-5809-056-6, WOS:000081131900077).
- [C8] R. Masiani, P. Trovalusci,
Micropolar and classical non-linear constitutive models for block materials, in T. Hughes e G. N. Pande (eds.), *Computer Methods in Structural Masonry-5*, Swansea (UK), Computers & Geotechnics Ltd, 2001, 239-246. (Refereed conference paper). (ISBN: 0 9510380 2 8).
- [C9] G. Rega, P. Trovalusci,
Structuristes-constructeurs, structuristes-mathématiciens et...architectes-structuristes?, in A. Becchi, M., Corradi, F. Foce, O. Pedemonte (Eds.) *Towards a History of Construction. Dedicated to Edoardo Benvenuto*, Basel, Birkhauser, 2002, 455-473. (Selected conference paper). (ISBN: 3-7643-6880-2, WOS:000231498500029)
- [C10] G. Rega, P. Trovalusci,
On the model of academic education in structural architecture, in F. Levi, M. Chiorino & C. Bertolini Cestari (Eds.), *Eduardo Torroja: from the philosophy of structures to the art and science of building*, Torino, Franco Angeli, 2002, 455-473. (Selected conference paper). (ISBN: 8846444930; WOS:000231498500029).
- [C11] P. Trovalusci, C. Baggio,
An optimisation algorithm for the collapse detection of stone masonry structures, *Advances in Architecture Series*, Vol **15**, C. A. Brebbia (ed.) 'Structural Studies, Repairs and Maintenance of Heritage Architecture VIII (STREMAH 2003)', Ashurst (UK), WIT Press, 2003, 473-481. (Conference paper. Presenting author). (ISSN: 1368-1435; ISBN: 1-85312-968-2, WOS:00018443510004; Scopus: 003042582141).

- P. Trovalusci,
- [C12] A constitutive model for fibre composite materials based on microscopic descriptions, in D. Bruno, G. Spadea, R. & N. Swamy (eds.) *Composites in Construction*, Cosenza, Editoriale Bios, 2003, 653-656. (Refereed conference paper. Presenting author). (ISBN: 8877403586).
- P. Trovalusci,
- [C13] Fabbriche murarie d'interesse storico e monumentale: modelli per l'analisi strutturale, in P. Rocchi (ed.) *Trattato sul Consolidamento*, Roma, Mancosu, 2003, 54-57. (ISBN: 9788877588197).
- [C14] P. Trovalusci, C. Baggio,
A computer code for the collapse detection of three-dimensional masonry structures, in T. Hughes and G. N. Pande (eds.), *Computer Methods in Structural Masonry-6*, Swansea (UK), Computers & Geotechnics Ltd, Swansea (UK), 2004, 82-89. (Refereed conference paper. Presenting author). (ISBN9780951038031).
- [C15] P. Trovalusci, G. Ruta, D. Capecchi,
Il modello molecolare di Voigt. In: *Da Archimede a Majorana: la fisica nel suo divenire*, Guaraldi, Roma, 2006, 183-194. (ISBN: 9788880493495).
- [C16] P. Trovalusci,
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