

Eric Puntel

Personal data

birth Trieste (Italy) , 11/28/1975
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Current position

09/2009– Assistant Professor of Mechanics of Materials
("Ricercatore di Scienza delle Costruzioni") at the University of Udine

Previous positions

11/2012–12/2012 Visiting Scholar at the Mechanical Engineering Department of
McGill University, Montreal (Quebec), Canada
10/2011–12/2011 Visiting Scholar at the Mechanical Engineering Department of the
University of Washington, Seattle, WA, USA
11/2009–12/2010 Visiting Scholar at the Mechanical Engineering Department of
McGill University, Montreal (Quebec), Canada
09/2006–10/2008 Research contract at the University of Udine
Coordinator: Prof. Cesare Davini
Theme: Asymptotic models in elasticity.
05/2005–08/2006 Research contract at the University of Udine
Coordinator: Prof. Marcello Riuscetti
Project: Seismic reclassification of the Friuli Venezia Giulia region

Present and past research interests

— Analytical methods for finite bending and wrinkling in gels.
— Quantitative analytical methods for the study of wrinkles in thin sheets.
— Asymptotic models in elasticity.
— Constitutive modelling and experimental characterization of joints and
interfaces in quasi-brittle materials.

Education

03/2001–05/2004 Ph. D. in Structural Engineering at the Politecnico di Milano.
10/1998–09/2000 Master in Civil Engineering at the University of Tokyo.
Mark: A
10/1994–10/2000 Graduation in Civil Engineering at the Politecnico di Milano.
Mark: 100/100 cum laude

Publications

Journal articles

- 06/2017 P. Nardinocchi, E. Puntel, Swelling–induced wrinkling in layered gel beams, *Proceedings of the Royal Society A*, submitted.
- 04/2017 M. Curatolo, P. Nardinocchi, E. Puntel, L. Teresi, Transient instabilities in the swelling dynamics of a hydrogel sphere, *Journal of Applied Physics*, arXiv: 1704.08201v1, submitted.
- 02/2017 P. Nardinocchi, E. Puntel, Unexpected hardening effects in bilayered gel beams, *Meccanica*, doi: 10.1007/s11012-017-0635-z .
- 07/2016 P. Nardinocchi, E. Puntel, Finite bending solutions for layered gel beams, *International Journal of Solids and Structures*, 90() 228-235.
- 03/2012 T. Kim, E. Puntel, E. Fried, Numerical study of the wrinkling of a stretched thin sheet, *International Journal of Solids and Structures*, 49(5) 771-782.
- 11/2011 E. Puntel, L. Deseri, E. Fried, Wrinkling of a stretched thin sheet, *Journal of Elasticity*, 105(1-2) 137–170.
- 03/2011 D. Slejko, G. B. Carulli, M. Ruscetti, F. Cucchi, S. Grimaz, A. Rebez, F. Accaino, A. Affatato, S. Biolchi, D. Nieto, E. Puntel, T. Sanò, M. Santulin, U. Tinivella, L. Zini, Soil characterization and seismic hazard maps for the Friuli Venezia Giulia region (NE Italy), *Bollettino di Geofisica Teorica ed Applicata*, 52(1) 59–104.
- 11/2008 C. Davini, R. Paroni, E. Puntel, An asymptotic approach to the torsion problem in thin walled beams, *Journal of Elasticity*, 93(2) 149–176.
- 09/2008 E. Puntel, V.E. Saouma, Experimental Behavior of Concrete Joint Interfaces under Reversed Cyclic Loading, *ASCE Journal of Structural Engineering*, 134(9) 1558–1568.
- 08/2008 C. Davini, R. Paroni, E. Puntel, An asymptotic approach to the torsion problem in thin rectangular domains, *Meccanica*, 43(4) 429–435.
- 11/2006 E. Puntel, G. Bolzon, V.E. Saouma, A Fracture Mechanics Based Model for Joints Under Cyclic Loading, *ASCE Journal of Engineering Mechanics*, 132(11) 1151-1159.

Conference proceedings

- 09/2011 E. Puntel, L. Deseri, E. Fried Wrinkling of a stretched thin sheet, *20th AIMETA Congress of Theoretical and Applied Mechanics*, Bologna.
- 06/2008 E. Puntel, V.E. Saouma, Experimental Behaviour of Concrete Joints Under Reversed Cyclic Loading, *AMCM'2008 "Analytical Models and New Concepts in Concrete and Masonry Structures"*, Łódź (Poland).
- 09/2007 C. Davini, R. Paroni, E. Puntel, A Γ –convergence approach to the torsion problem in thin-walled beams, *18th AIMETA Congress of Theoretical and Applied Mechanics*, Brescia.

- 03/2005 E. Puntel, G. Bolzon and V.E. Saouma, An experimental and numerical investigation of concrete dam joints, *Proceedings 11th International Conference on Fracture (ICF)*, Torino.
- 06/2001 Y. Nakagawa, E. Puntel and H. Horii, A displacement rate dependent softening model applied to the unstable propagation of shear crack in soft rock, *Proceedings IUTAM Symposium on Analytical and computational fracture mechanics of non-homogeneous materials*, Cardiff University (UK).

Theses

- Ph.D. “Experimental and numerical investigation of the monotonic and cyclic behaviour of concrete dam joints”
Supervisors: Prof. Gabriella Bolzon (Politecnico di Milano) and Prof. Victor E. Saouma (University of Colorado at Boulder).
- Master “A rate dependent softening model applied to the shear crack propagation in soft rock”
Supervisor in Japan: Prof. Hideyuki Horii.
Supervisors in Italy : Prof. Giulio Maier and Prof. Roberto Nova.

Co-authored technical reports

- 03/2014 “Analisi del collasso per instabilità di profili commerciali in acciaio formati a freddo, forati a passo regolare e soggetti a compressione semplice”
Authors: Simone Pierobon and Eric Puntel
Funding: Modulblok S.p.A.
- 11/2006 “Riclassificazione Sismica del Friuli Venezia Giulia - III fase”
Coordinator: Prof. Marcello Ruscetti (University of Udine).
Funding: Protezione Civile del Friuli – Venezia Giulia.
Contribution: 1D and 2D modelling of local seismic response.
- 04/2006 Virtual reality simulation of the Venzone Duomo collapse after the May 6th 1976 Friuli earthquake (<http://hclab.uniud.it/terremoto/>)
Coordinator: Prof. Marcello Ruscetti (University of Udine)
Contribution: Graphical reconstruction in three dimensions of the Venzone Duomo masonry walls and dynamic simulation of the collapse.
- 12/2005 “Modelli di interfaccia per giunti artificiali e naturali per analisi diagnostiche e sismiche”
SISSET Project, sub-project SIDI (Dam safety and auxiliary works).
Funding: CESI Ricerca di Sistema (<http://www.ricercadisistema.it/>).
Scientific coordinator: Prof. Giulio Maier (Politecnico di Milano).

Talks

Conferences and meetings with abstract only

- 09/2017 M. Curatolo, P. Nardinocchi, E. Puntel, Archetypal sensing and actuation in soft gel beams, *23rd AIMETA Congress of of Theoretical and Applied Mechanics*, Salerno (Italy).
- 05/2017 P. Nardinocchi, E. Puntel, Flexure and buckling actuation in bilayer gel beams, *DeMEASS VIII, Design Modelling and Experiments of Advanced Structures and Systems*, Moscow (Russia).
- 09/2015 P. Nardinocchi, M. Pezulla and E. Puntel, Swelling-induced elastic instabilities in geometric composites, *22nd AIMETA Congress of of Theoretical and Applied Mechanics*, Genoa (Italy).
- 06/2013 E. Puntel, E. Fried, T.-Y. Kim, Wrinkling of a stretched thin sheet, "*SIAM Conference on Mathematical Aspects in Material Science*", Philadelphia, PA (USA).
- 05/2013 E. Puntel, E. Fried, Wrinkling of a lipid vesicle in an electric field, "*Thirteenth Pan-American Congress of Applied Mechanics*", Houston, TX, (USA).
- 09/2011 E. Puntel, L. Deseri, E. Fried, Wrinkling of a stretched thin sheet, *ICMM "2nd International Conference on Material Modelling"*, Paris (France).
- 02/2011 E. Puntel, V.E. Saouma, Experimental behaviour of concrete joints interfaces under reversed cyclic loading, *GMA 2011 "5th Meeting of the AIMETA Materials' Group"*, Udine (Italy).
- 09/2009 E. Puntel, Lumped Strain Method for thin plates: a numerical appraisal *ICMM "1st International Conference on Material Modelling"*, Dortmund (Germany).
- 10/2008 P. Malisan, S. Grimaz, M. Ruscetti, F. Barazza, E. Puntel, R. Carniel, E. Del Pin, M. Di Cecca, Utilization of passive seismic methods for a rapid dynamical characterization of structures: the Salt bridge case study *Gruppo Nazionale di Geofisica della Terra Solida, 27th National Congress*, Trieste (Italy).
- 11/2007 D. Slejko, G.B. Carulli, M. Ruscetti, A. Affatato, S. Biolchi, A. Bratus, G. Burelli, F. Cucchi, E. Del Pin, S. Grimaz, D. Nieto, E. Puntel, A. Rebez, T. Sanò, M. Santulin, U. Tinivella, L. Zini, Site Effects Applied to Seismic Hazard Estimates for the Friuli-Venezia Giulia Region (N.E. Italy) *Gruppo Nazionale di Geofisica della Terra Solida, 26th National Congress*, Rome (Italy).
- 02/2007 C. Davini, R. Paroni, E. Puntel, On the torsion problem in thin rectangular domains, *1st Meeting of the AIMETA Materials' Group*, Trento (Italy).
- 02/2005 V.E. Saouma, J. Červenka, E. Puntel, T. Shimpo, Discrete Crack Models: from Theory to Dam Engineering, *EUROMECH Colloquium 460 "Numerical Modelling of Concrete Cracking"*, Università di Innsbruck (Austria).
- 11/2004 V.E. Saouma, J. Červenka, E. Puntel, V. Slowik, Modeling of Joints: tests, models, applications, *Workshop on Interface Models*, Universitat Politècnica de Catalunya, Barcelona (Spain).

Invited talks

- 08/2017 Flexure and buckling actuation in bilayer gel beams, *INdAM Meeting of Mathematical Physics of Living Systems*, Cortona (AR), Italy.
- 11/2016 Hard facts on soft actuators, “*Recent Advances in the Mechanics of Materials*”, Dip.to di Architettura, Università di Sassari, Alghero (SS), Italy.
- 11/2016 Hard facts on soft actuators, “*Mechanics and Mathematics of (soft) Materials and Structures @ DISG*”, Dip.to di Ingegneria Strutturale e Geotecnica, Sapienza Università di Roma, Italy.
- 05/2013 E. Puntel, E. Fried, Wrinkling of a lipid vesicle in an electric field, “*Multi-Scale Modeling and Characterization of Innovative Materials and Structures*”, Cetara (SA), Italy
- 02/2013 E. Puntel, E. Fried, Wrinkling in stretched sheets and in lipid vesicles subject to electric fields, “*Mathematics and Mechanics of Biological Assemblies and Soft Tissues, second national meeting*”, Università Roma Tre, Rome, Italy.
- 12/2011 Wrinkling of a stretched thin sheet, “*ME Fall 2011 Seminars*”, Mechanical Engineering Department, University of Washington, Seattle (USA).
- 10/2011 Wrinkling of a stretched thin sheet, “*Advances in the Science of Solids and Engineering Mechanics*”, workshop of the Italian branch of the “Society for Natural Philosophy”, SISSA, Trieste (Italy).

Reviewing activity

Journals and Institutions

- 2017– Mechanical Systems and Signal Processing
- 2016– Meccanica
- 2016– Composites B
- 2015– Engineering Structures
- 2014– Italian Ministry of Education, University and Research (MIUR)
- 2014– ASCE Journal of Structural Engineering
- 2013– International Journal of Solids and Structures
- 2013– ASTM Journal of Testing and Evaluation
- 2013– Journal of Elasticity
- 2009– Journal of Mechanics of Materials and Structures

Teaching

Teaching experience

09/2017–	Strength of Materials for Architecture students at the University of Udine
09/2015–	Statics for Architecture students at the University of Udine
03/2015–	Plasticity and Stability of Structures delivered in English to Civil Engineering students at the University of Udine
03/2015–09/2015	Mechanics of Materials for Architecture students at the University of Udine
03/2011–03/2015	Fracture Mechanics for Civil Engineering students at the University of Udine
03-2011–03/2015	Mechanics of Materials for Civil Engineering students at the University of Udine
01/2008–07/2009	Lecturer (“Docente a contratto”) of Mechanics of Materials for Environmental Engineering students at the University of Udine.
01/2005–07/2009	Tutorial of Mechanics of Materials for Civil and Environmental Engineering Courses at the University of Udine (Prof. Cesare Davini).
09/2001–09/2003	Tutorial of Mechanics of Materials II (i.e. limit analysis and finite elements) for Civil Engineering Courses at the Politecnico di Milano (Prof. Alberto Corigliano).
11/2000–06/2004	Tutorial of Mechanics of Materials for Civil and Mechanical Engineering Courses at the Politecnico di Milano (Prof. Gabriella Bolzon, Prof. Osvaldo De Donato).

Other

Ph.D. Thesis recognitions

06/2005	Named by AIMETA (Italian Association of Theoretical and Applied Mechanics) as finalist in the selection process of “ECCOMAS Ph.D. Award” for the best Ph.D. thesis of 2004 in Computational Methods for Applied Sciences and Engineering.
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Foreign languages

English	Passed the “Certificate of Proficiency in English” with mark B in June 1995 and the “Test of English as a Foreign Language” (TOEFL) in March 1997 scoring 627.
Japanese	Level 3 of the “Japanese Language Proficiency Test” passed in December 1999 scoring 374/400.
French	basic skills.

Udine, August 22nd 2017