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ULISSE STEFANELLI, CURRICULUM VITAE

CONTACT

Istituto di Matematica Applicata e Tecnologie Informatiche - IMATI,
Consiglio Nazionale delle Ricerche - CNR,
via Ferrata 1, I-27100 Pavia, Italy.

phone: +39-0382-548202
ulisse.stefanelli@imati.cnr.it

fax: +39-0382-548300
<http://www.imati.cnr.it/ulisse/>

Born September 19, 1975.

Italian citizenship.

RESEARCH INTERESTS

Main research fields: Partial Differential Equations, Calculus of Variations, Continuum Thermomechanics.

Main keywords: Nonlinear PDEs and systems, Evolution equations, Variational techniques, Γ -convergence and relaxation, Approximation and discretization, Mathematical modeling of materials, Phase transformations in solids, Shape-memory alloys, Magnetic materials.

POSITIONS

2002 - today *Senior Researcher*, IMATI - CNR.

Spring 2011 *Friedrich Wilhelm Bessel Research awardee* (research fellow), WIAS Berlin.

2003 - today *Professor* (temporary), University of Pavia.

2001 - 2002 *Researcher* (permanent), Istituto di Analisi Numerica - CNR.

EDUCATION

Ph.D. in *Mathematics and Scientific Computing* (advisor P. Colli), University of Pavia, 2003.

SAFI Advanced School, Institute for Advanced Study - IUSS, Pavia, 2002.

Laurea in Matematica, University of Pavia, 1998.

ERC STARTING GRANT

I am presently running a *European Research Council Starting Independent Research Grant* on *Mathematics for Shape Memory Technologies in Biomechanics*.

The grant amounts to 700 K€ over 5 years and is aimed at supporting a new research group in modeling, analysis, and simulation of Smart Materials behavior.

Additional information at <http://www.imati.cnr.it/biosma.html>

AWARDS

- *Richard von Mises Prize*, GAMM, 2010.
- *Friedrich Wilhelm Bessel Research Award*, Alexander von Humboldt Foundation, 2009.
- *CNR 2005 prize*, awarded 2009.
- *ERC Starting Grant*, 2008.
- *SIMAI 2004 prize* (best PhD thesis in Applied Math in Italy).
- *SAFI - IUSS prizes* in 1999, 2000, and 2001.
- *Cinquini prize* 1998 (best diploma thesis in Math in Pavia).

INVITED LECTURES AND SEMINARS

Plenary lectures

- *GAMM 81st Annual Scientific Conference*, Karlsruhe, March 2010.
Richard von Mises Prize lecture.
- *Free Boundary Problems: Theory and Applications*, Stockholm, June 2008.
- *Alcuni problemi quasivariazionali con memoria*. Semi-plenary lecture, XVII Congresso della Unione Matematica Italiana, Milan, Sept. 2003.

Invited Lectures

- International workshop on *Interfaces and discontinuities in solids, liquids and crystals*, Gargnano, June 2011.
- *8th International Symposium on Hysteresis and Micromagnetics Modeling*, Levico, May 2011.
- *Nonconvex evolution problems*, Rome, December 2010.
- *Microstructures in Solids: From Quantum Models to Continua*, Oberwolfach, March 2010.
- Minisymposium on *Constitutive Modeling and Simulation of Superelastic/Shape Memory Materials* in *COMPLAS X*, Barcelona, September 2009.
- *Mathematical Models and Analytical Problems for Special Materials*, Brescia, July 2009.
- *Non-local Phenomena in Pattern-Forming Systems*, Technion, Haifa, June 2009.
- Minisymposium on *Analytical and numerical aspects of time dependent models with internal variables* in *GAMM- Meeting*, Gdansk, February 2009.
- *International Conference on Free Boundary Problems in Chiba 2007. Nonlinear Phenomena with Energy Dissipation*, Chiba, November 2007.
- *Rate-Independence, Homogenization and Multiscaling*, Pisa, November 2007.
- Special session on *Phase transitions and hysteresis in free boundary problems* within the *Joint International Meeting UMI - DMV*, Perugia, June 2007.
- *Analysis and numerics for rate-independent processes*, Oberwolfach, February 2007.
- *Dynamics of phase transitions*, Berlin, November 2005.

- Minisymposium on *Rate independent processes and hysteresis* in *EQUADIFF 11 International conference on differential equations*, Bratislava, July 2005.
- Special session on *Free Boundary Problems and Applications* in the *5th AIMS International Conference on Dynamical Systems and Differential Equations*, Pomona, June 2004.
- *Colloquium Lagrangianum*, Trani, June 2002.
- *Shape Memory Alloys, Experimental Verification and Numerical Modeling*, Karlsruhe, July 2001.

Seminars

- *Evolution = Minimization?*, Berlin Mathematical School, Friday Talk, 2011.
- *A variational view at linearized plasticity*, Humboldt Universität zu Berlin, 2011.
- *An invitation to shape flows*, WIAS Berlin, Langenbach seminar, 2011.
- *Macromodeling of the magnetic shape-memory effect*, MPI Leipzig, 2011.
- *The WED principle and the evolution of microstructures*, Politecnico di Milano, 2009.
- *The WED principle*, University of Roma *La Sapienza*, 2009.
- *Il modello più semplice per le leghe a memoria di forma*, University of Bologna, 2009.
- *The simplest model for shape memory alloys*, Humboldt Universität zu Berlin, 2008.
- *Il funzionale dissipazione-energia*, University of Trento, 2008.
- *A variational principle for elasto-plasticity*, Institut für Angewandte Mathematik, Universität Bonn, 2008.
- *Variational models of hysteresis*. Institut für Mathematik, Universität Zürich, 2007.
- *No $C^{2,1}$ regularity for parabolic fully nonlinear equations*. Analysis Seminar, ETH Zürich, 2007.
- *The regularity of diffusive flames*. Seminar for Applied Mathematics, ETH Zürich, 2006.
- *Attractors and curves of maximal slope*. University of Texas at Austin, 2006.
- *Implicit problems and orders*. CMAF - Centro de matemática e aplicações fundamentais, Lisbon, 2005.
- *Microscopic movements and phase transitions models*. WIAS Berlin, 2004.
- *Some remarks on the simplest fully nonlinear parabolic equation*. University of Pavia, 2004.
- *Sweeping processes with memory*. Technische Universität, München, 2003.
- *Quelques processus de rafle quasivariationnels*, LMGC Montpellier, 2003.
- *Some quasivariational evolution problems with memory*, Lab. ACSIOM, Université de Montpellier 2, 2003.
- *Modelli super-elastici per materiali a memoria di forma*. University of Trento, 2002.
- *Approssimazione di alcune equazioni di evoluzione contenenti termini non locali*, IAN - CNR, Pavia, 2001.
- *On a class of nonlocal equations: theory, approximation, and applications*. WIAS Berlin, 2000.

Research experiences

- 2011 WIAS Berlin (5 months). Host: A. Mielke.
Friedrich Wilhelm Bessel Research Awardee, von Humboldt Foundation.
- 2006 ETH and Universität Zürich (5 months). Hosts: R. Hiptmair and C. DeLellis.
CNR - Short-Term Mobility and *CNR - Fonds National Suisse de la Recherche Scientifique* fellow.
- 2004 WIAS Berlin (1 month). Hosts: J. Sprekels and P. Krejčí.
CNR - Short-Term Mobility fellow.
- 2003 Laboratoire de Mécanique et Génie Civil, Montpellier (2 months).
Host: G. Geymonat.
- 2003 Institute for Computational Engineering and Science, Austin (1 month). Host: L.A. Caffarelli.
J.T. Oden Faculty Research fellow.
- 2001 University of Texas at Austin (8 months). Host: L.A. Caffarelli.
CNR - outbound fellow.
- 2000 WIAS Berlin (1 month). Hosts: J. Sprekels and P. Krejčí.
Granted by WIAS.

Visits

- 2011 MPI Leipzig (invited by F. Otto). Charles University, Technical University, AV ČR Prague.
Humboldt Universität zu Berlin (invited by C. Carstensen).
- 2010 University of Trento (invited by A. Visintin).
- 2009 WIAS Berlin (invited by A. Mielke). University of Bologna (invited by M. Fabrizio), University of Roma *La Sapienza* (invited by L. Giacomelli).
- 2008 University of Trento (invited by A. Visintin), WIAS and Humboldt Universität zu Berlin (invited by A. Mielke).
- 2007 Universität Bonn (invited by F. Otto).
- 2006 University of Texas at Austin (invited by L.A. Caffarelli),
- 2005 CMAF - Centro de matemática e aplicações fundamentais, Lisbon (invited N. Chemetov and M.D.P. Monteiro Marques), WIAS Berlin (invited by A. Mielke).
- 2004 University of Texas at Austin (invited by L.A. Caffarelli).
- 2003 University of Texas at Austin (invited by L.A. Caffarelli). University of Trento (invited by A. Visintin). Technische Universität, München (invited by M. Brokate).
- 2002 University of Texas at Austin (invited by L.A. Caffarelli).
University of Trento (invited by A. Visintin).

GRANTS

Principal Investigator

- CNR - Japan Society for the Promotion of Science (JSPS) Grant *Innovative variational methods for evolution PDEs*, 2012-2013.
- ERC Starting Grant *BioSMA: Mathematics for Shape Memory Technologies in Biomechanics*, 2008-2013.
- CNR - Academy of Sciences of the Czech Republic (AV ČR) Grant *SMART-MATH: The Mathematics of Smart Materials: thermodynamics, analysis and applications*, 2010-2012.

Coordinator

- CNR research program CNR.PC.P03.008 *Analisi e sintesi di dati eterogenei per monitoraggio e conservazione di Beni Culturali*.
- CNR research program CNR.SP.P01.027 *Modellazione, analisi e simulazione per dispositivi a memoria di forma*.
- EUROCORES - European Science Foundation S3T *SMARTeR: Shape Memory Alloys to Regulate Transient Responses in civil engineering*, 2007-2009 (local coordinator at IMATI)

Participant

- Italian PRIN Grant 2008–2009: *Optimal transport, functional and geometric inequalities, and applications* (coordinator: L. Ambrosio)
- Italian PRIN Grant 2006–2007: *Variational methods in optimal transport and geometric measure theory* (coordinator: L. Ambrosio)
- Italian PRIN Grant 2004–2005: *Mathematical modelling and analysis of free boundary problems* (coordinator: A. Visintin)
- Italian INdAM GNAMPA Grant 2004: *Variational methods for evolution and optimal transport problems* (coordinator: G. Savaré)
- Italian PRIN Grant 2002–2003: *Free boundary problems in applied sciences* (coordinator: A. Visintin)
- Italian PRIN Grant 2000–2001: *Free boundary problems* (coordinator: A. Visintin)
- Italian PRIN Grant 1998–2000: *Mathematical analysis of models of phase transitions and related problems* (coordinator: A. Visintin)

Fellowships

- *J.T. Oden Faculty Research Fellowship*, ICES, 2003.
- *CNR - Fonds National Suisse de la Recherche Scientifique* fellowship, 2006.
- *CNR - Short-Term Mobility* fellowships, 2004 and 2006.
- *CNR - outbound* fellowship 203.21.01.
- Alumnus of the *Collegio Ghislieri*, Pavia, 1994-1998.

PROFESSIONAL SERVICE

Editorial boards

- *Discrete and Continuous Dynamical Systems - S*, associate editor (2008-present).
- *Differential Equations and Applications*, associate editor (2008-present).

Reviewer and evaluation activity

- *External Expert* (referee) for the *IDEAS* programme of the *European Research Council*, 7th Framework Programme, 2008-2013.
- International referee for the *Council of Physical Sciences of the Netherlands Organization for Scientific Research (NWO)*, 2002.

Selection committees

- 2 CNR researchers (permanent) at IAC and IASI, Roma, 2011.
- 1 CNR-ERC researcher (temp.) at IMATI, 2009.
- 8 PostDoc hirings at IMATI in the period 2006-2011.

Organization

- Workshop *Variational Methods for Evolution* with A. Mielke, F. Otto, and S. Savaré, *Mathematisches Forschungsinstitut Oberwolfach*, Oberwolfach, 04-10.12.2011.
- Workshop *Rate-independence: Modeling, Analysis, and Computations* with G. Savaré, *BIRS*, Banff, 23.08-02.09.2010.
- Workshop *Numerical Methods for Multi-Material Fluids and Structures*, Pavia, September 2009.
- Workshop *Phase transitions in PV*, Pavia, May 2009.
- Minisymposium with A. Mielke on *Advances in Variational Evolution* within the *5th European Congress of Mathematics*, Amsterdam, July 2008.
- Special Session with A. Miranville on *Thermomechanics and phase change* within the *7th AIMS International Conference on Dynamical Systems and Differential Equations*, Arlington TX, May 2008.
- Minisymposium with T. Roubiček on *Rate-independent evolutions and material modeling* within *Equadiff 2007*, Vienna, August 2007.

Memberships

- GAMM (2010-present), ISIMM (2008-present), UMI (1999-present).

TEACHING

Lectures in International Schools

EVEQ2012: International Summer School on Evolution Equations, Prague, Czech Republic, July 2012

TMR School on *Modeling, Control and Numerical Simulation of Smart Systems*, University of Pavia, 2003

Graduate teaching

2011-2012 *An energetic view at inelasticity*, PhD course, IUSS - Institute for Advanced Study, Pavia

2009-2010 Lecture within the PhD course on *Calculus of Variations*, PhD School in Math and Statistics, University of Pavia

2006-2007 *Dissipative evolution in metric spaces*, PhD course, Zürich Graduate School in Mathematics, ETH e Universität Zürich

2004-2005 *Evolution problems and hysteresis*, PhD course, University of Pavia

Undergraduate and M.Sc. teaching

2011-2012 *Mathematical Analysis 1*, Biomedical Engrg. and Computer Sci., University of Pavia.

2010-2011 *Mathematical Analysis 1*, Biomedical Engrg. and Computer Sci., University of Pavia.

2009-2010 *Mathematical Analysis 1*, Biomedical Engrg. and Computer Sci., University of Pavia.

2008-2009 *Mathematical Analysis 2*, Biomedical and Industrial Engrg., Pavia.

2007-2008 *Mathematical Analysis 2*, Biomedical and Industrial Engrg., Pavia.

2006-2007 *Introduction to PDEs*, Mathematics, University of Pavia.

2006-2007 *Mathematical Analysis 2*, Biomedical and Industrial Engrg., Pavia.

2005-2006 *Introduction to PDEs*, Mathematics, University of Pavia.

2003-2004 *Introduction to PDEs*, Mathematics, University of Pavia.

Theses supervision

Francesca Bonizzoni

Title: *Un modello di danneggiamento incompleto per materiali a memoria di forma*

Classe di Scienze e Tecnologie, IUSS - Institute for Advanced Study, Pavia, 2010

(mark: *excellent*).

→ This thesis has been awarded the *Valter Esposti 2010 prize* from the CNR.

Elisabetta Repossi

Title: *Shape memory materials: Auricchio-Souza model with Armstrong-Fredericks hardening*

Classe di Scienze e Tecnologie, IUSS - Institute for Advanced Study, Pavia, 2010

(mark: *excellent*).

Elisabetta Chiodaroli

Title: *Un modello per SMA in deformazione finita*

Classe di Scienze e Tecnologie, IUSS - Institute for Advanced Study, Pavia, 2010

(mark: *excellent*).

Paolo Pacciarini

Title: *Un approccio variazionale al moto per curvatura media: risultati numerici in una dimensione*

Diploma in Mathematics, Università di Pavia, 2010

(mark: 110/110 and honors).

PostDocs

2009-today Alice Fiaschi.

Theme: *Quasistatic evolution in a measure-theoretic frame.*

2011-today Edoardo Mainini.

Theme: *Carbon nanostructures.*

2011-today Chiara Zanini.

Theme: *Magnetostrictive materials.*

2009-2010 Anne-Laure Bessoud.

Theme: *Magnetic shape-memory effect.*

2009-2011 Sergio Frigeri.

Theme: *Finite-strain shape-memory modeling.*

Spring 2010 Matthias Liero.

Theme: *Elliptic regularization of hyperbolic problems.*

Service

2010-present Member of the *Collegio docenti* of the PhD School in *Computational Mechanics and Advanced Materials*, IUSS-Institute for Advanced Study, Pavia.

PUBLICATIONS

Volumes edited

- V1 A. Miranville, U. Stefanelli.
Thermomechanics and phase change,
Discrete Contin. Dyn. Syst. Ser. S, 4 (2011), no. 2.
- V2 T. Roubíček, U. Stefanelli.
Rate-independent evolutions and material modeling,
Pubblicazione IMATI - CNR 29PV10/27/0, 2010.

Papers in refereed journals or collections¹

1. U. Stefanelli. Analysis of a variable time-step discretization for the Penrose-Fife phase relaxation problem, *Nonlinear Anal.*, 45 (2001), 2:213–240.
2. U. Stefanelli. Error control of a nonlinear evolution problem related to phase transitions, *Num. Func. Anal. Optim.*, 20 (1999), 5&6:585–608.
3. U. Stefanelli. Analysis of a variable time-step discretization of the three-dimensional Frémond model for shape memory alloys, *Math. Comp.*, 71 (2002), 240:1431–1453.
4. U. Stefanelli. Error control for a time-discretization of the full one-dimensional Frémond model for shape memory alloys, *Adv. Math. Sci. Appl.*, 10 (2000), 2:917–936.
5. P. Colli, F. Luterotti, G. Schimperna, U. Stefanelli. Global existence for a class of generalized systems for irreversible phase changes, *NoDEA - Nonlinear Differential Equations and Appl.*, 9 (2002), 3:255–276.
6. F. Luterotti, G. Schimperna, U. Stefanelli. Existence result for a nonlinear model related to irreversible phase changes, *Math. Models Meth. Appl. Sci.*, 11 (2001), 5:809–827.
7. U. Stefanelli. Well-posedness and time-discretization of a nonlinear Volterra integrodifferential equation, *J. Integral Eq. Appl.*, 13 (2001), 3:273–304.
8. U. Stefanelli. Boundedness of the temperature for the general Frémond model for shape memory alloys, *Z. Angew. Math. Phys.*, 53 (2002), 4:704–711.
9. F. Luterotti, G. Schimperna, U. Stefanelli. Global solution to a phase field model with irreversible and constrained evolution, *Quart. Appl. Math.*, 60 (2002), 2:301–316.
10. P. Colli, Ph. Laurençot, U. Stefanelli. Long-time behavior for the full Frémond model for shape memory alloys, *Contin. Mech. Thermodyn.*, 12 (2000), 6:423–433.
11. U. Stefanelli. On a class of doubly nonlinear nonlocal evolution equations, *Differential Integral Equations*, 15 (2002), 8:897–922.
12. P. Krejčí, J. Sprekels, U. Stefanelli. Phase-field models with hysteresis in one-dimensional thermoviscoplasticity, *SIAM J. Math. Anal.*, 34 (2002), 2:409–434.
13. U. Stefanelli. On some nonlocal evolution equations in Banach spaces, *J. Evol. Equ.*, 4 (2004), 1–26.
14. F. Luterotti, U. Stefanelli. Existence result for the one-dimensional full model of phase transitions, *Z. Anal. Anwendungen*, 12 (2002), 2:335–350, 2002. Errata & Addendum, *ibid.*, 22 (2003), 1:239–240.

¹Ordered as submitted

15. Ph. Laurençot, G. Schimperna, U. Stefanelli. Global existence of a strong solution to the one-dimensional full model for irreversible phase transitions, *J. Math. Anal. Appl.*, 271 (2002), 2:426–442.
16. P. Krejčí, J. Sprekels, U. Stefanelli. One-dimensional thermo-visco-plastic processes with hysteresis and phase transitions, *Adv. Math. Sci. Appl.*, 13 (2003), 2:695–712.
17. D. Kessler, J.-F. Scheid, G. Schimperna, U. Stefanelli. Study of a system for the isothermal separation of components in a binary alloy with change of phase, *IMA J. Appl. Math.*, 69 (2004), 233–257.
18. F. Luterotti, G. Schimperna, U. Stefanelli. A generalized phase-relaxation model with hysteresis, *Nonlinear Anal.*, 55 (2003), 4:381–398.
19. K. Shirakawa, U. Stefanelli. Structure result for steady-state solutions of a one-dimensional Frémond model of SMA, *Phys. D*, 190 (2004), 3-4:190–212.
20. R.E. Showalter, U. Stefanelli. Diffusion in poro-plastic media, *Math. Methods Appl. Sci.*, 27 (2004), 18:2131–2151.
21. U. Stefanelli. Some quasivariational problems with memory, *Boll. Unione Mat. Ital. Sez. B Artic. Ric. Mat. (8)*, 7 (2004), 319–333.
22. F. Auricchio, U. Stefanelli. Numerical analysis of a 3D super-elastic constitutive model, *Int. J. Numer. Meth. Engng.*, 61 (2004), 142–155.
23. G. Schimperna, U. Stefanelli. A quasi-stationary phase-field model with micro-movements, *Appl. Math. Optim.*, 50 (2004), 1:67–86.
24. R. Rossi, U. Stefanelli. An order approach to a class of quasivariational sweeping processes, *Adv. Differential Equations*, 10 (2005), 5:527–552.
25. U. Stefanelli. Analysis of a thermo-mechanical model for shape memory alloys, *SIAM J. Math. Anal.*, 37 (2005), 1:130–155.
26. F. Auricchio, U. Stefanelli. Well-posedness and approximation for a one-dimensional model for shape memory alloys, *Math. Models Meth. Appl. Sci.*, 15 (2005), 9:1301–1327.
27. R. Peyroux, U. Stefanelli. Analysis of a 1D thermoviscoelastic model with temperature-dependent viscosity, in *Dissipative phase transitions*, P. Colli, N. Kenmochi, J. Sprekels eds., Series on Advances in Mathematics for Applied Sciences, Vol. 71, 225–246, World Sci. Publishing, 2006.
28. U. Stefanelli. Analysis of a variable time-step discretization for a phase transition model with micro-movements, *Comm. Pure Appl. Anal.*, 5 (2006), 3:657–671.
29. G. Schimperna, U. Stefanelli. Positivity of the temperature for phase transitions with micro-movements, *Nonlinear Anal. Real World Appl.*, 8 (2007), 257–266.
30. G. Gilardi, U. Stefanelli. Time-discretization and global solution for a doubly nonlinear Volterra equation, *J. Differential Equations*, 228 (2006), 2:707–736.
31. U. Stefanelli. Some remarks on convergence and approximation for a class of hysteresis problems, *Istit. Lombardo Accad. Sci. Lett. Rend. A*, 140 2006 (2009), 81–108.
32. F. Auricchio, A. Reali, U. Stefanelli. A three-dimensional model describing stress-induced solid phase transformation with permanent inelasticity, *Int. J. Plasticity*, 23 (2007), 207–226.
33. U. Stefanelli. Nonlocal quasivariational evolution problems, *J. Differential Equations*, 229 (2006), 1:204–228.
34. F. Luterotti, G. Schimperna, U. Stefanelli. Existence results for a phase transition model based on microscopic movements, in *Differential equations: inverse and direct problems*, A. Favini and A. Lorenzi eds., Lecture Notes in Pure and Applied Mathematics, Vol. 251, 247–266, Taylor & Francis, 2006.

35. G. Gilardi, U. Stefanelli. Existence for a doubly nonlinear Volterra equation, *J. Math. Anal. Appl.*, 333 (2007), 2:839–862.
36. G. Schimperna, A. Segatti, U. Stefanelli. Well-posedness and long-time behavior for a class of doubly nonlinear equations, *Discrete Contin. Dyn. Syst.*, 18 (2007), 1:15–38.
37. A. Mielke, T. Roubíček, U. Stefanelli. Γ -limits and relaxations for rate-independent evolutionary problems, *Calc. Var Partial Differential Equations*, 31 (2008), 3:387–416.
38. R. Rossi, A. Segatti, U. Stefanelli. Attractors for gradient flows of non convex functionals and applications, *Arch. Ration. Mech. Anal.*, 187 (2008), 1:91-135.
39. N. Chemetov, M. Monteiro Marques, U. Stefanelli. Ordered non-convex quasi-variational sweeping processes, *J. Convex Anal.*, 15 (2008), 2:201–214.
40. L.A. Caffarelli, U. Stefanelli. A counterexample to $C^{2,1}$ regularity for parabolic fully nonlinear equations, *Comm. Partial Differential Equations*, 33 (2008), 7:1216–1234.
41. F. Auricchio, A. Mielke, U. Stefanelli. A rate-independent model for the isothermal quasi-static evolution of shape-memory materials, *Math. Models Meth. Appl. Sci.*, 18 (2008), 1:125–164.
42. U. Stefanelli. The Brezis-Ekeland principle for doubly nonlinear equations, *SIAM J. Control Optim.*, 47 (2008), 3:1615–1642.
43. U. Stefanelli. A variational principle for hardening elastoplasticity, *SIAM J. Math. Anal.*, 40 (2008), 2:623–652.
44. U. Stefanelli. The discrete Brezis-Ekeland principle, *J. Convex Anal.*, 16 (2009), 1:71–87.
45. U. Stefanelli, A. Visintin. Some nonlinear evolution problems in mixed form, *Boll. Unione Mat. Ital. (9)*, 2 (2009), 303–320.
46. A. Mielke, U. Stefanelli. A discrete variational principle for rate-independent evolution, *Adv. Calc. Var.*, 1 (2008), 4:399-431.
47. F. Auricchio, A. Reali, U. Stefanelli. A macroscopic 1D model for shape memory alloys including asymmetric behaviors and transformation-dependent elastic properties, *Comput. Methods Appl. Mech. Engrg.*, 198 (2009), 1631–1637.
48. A. Mielke, U. Stefanelli. Weighted energy-dissipation functionals for gradient flows, *ESAIM Control Optim. Calc. Var.*, 17 (2011), 1:52–85. → Presently the top downloaded article of the journal of the year.
49. U. Stefanelli. A variational characterization of rate-independent evolution, *Math. Nachr.*, 282 (2009), 11:1492–1512.
50. P. Krejčí, U. Stefanelli. Well-posedness of a thermo-mechanical model for shape memory alloys under tension, *M2AN Math. Model. Numer. Anal.*, 44 (2010), 6:1239–1253.
51. G. Akagi, U. Stefanelli. A variational principle for doubly nonlinear evolution, *Appl. Math. Lett.*, 23 (2010), 9:1120–1124.
52. A. Mielke, L. Paoli, A. Petrov, U. Stefanelli. Error estimates for discretizations of a rate-independent variational inequality, *SIAM J. Numer. Anal.*, 48 (2010), 5:1625–1646.
53. F. Auricchio, A.-L. Bessoud, A. Reali, U. Stefanelli. A three-dimensional phenomenological model for Magnetic Shape Memory Alloys, *GAMM-Mitt.*, 34 (2011), 1:90–96.
54. A.-L. Bessoud, U. Stefanelli. Magnetic Shape Memory Alloys: three-dimensional modeling and analysis, *Math. Models Meth. Appl. Sci.*, 21 (2011), 5:1043–1069.

55. R. Rossi, A. Segatti, U. Stefanelli. Global attractors for gradient flows in metric spaces, *J. Math. Pures Appl.* (9), 95 (2011), 2:204–244.
56. P. Krejčí, U. Stefanelli. Existence and nonexistence for the full thermomechanical Souza-Auricchio model of shape memory wires. *Math. Mech. Solids*, 16 (2011), 4:349–365.
57. U. Stefanelli. The De Giorgi conjecture on elliptic regularization, *Math. Models Meth. Appl. Sci.*, 21 (2011), 6:1377–1394.
58. M. Eleuteri, L. Lussardi, U. Stefanelli. A rate-independent model for permanent inelastic effects in shape memory materials, *Netw. Heterog. Media*, 6 (2011), 1:145–165.
59. G. Akagi, U. Stefanelli. Weighted energy-dissipation functionals for doubly nonlinear evolution, *J. Funct. Anal.*, 260 (2011), 9:2541–2578.
60. S. Frigeri, P. Krejčí, U. Stefanelli. Quasistatic isothermal evolution of shape memory alloys, *Math. Models Meth. Appl. Sci.*, 21 (2011), 12:2409–2432.
61. G. Akagi, U. Stefanelli. Periodic solutions for doubly nonlinear evolution equations, *J. Differential Equations*, 251 (2011), 1790–1812.
62. U. Stefanelli. Magnetic control of magnetic shape-memory crystals, *Phys. B*, (2011), to appear.
63. E. Spadaro, U. Stefanelli. A variational view at the time-dependent minimal surface equation, *J. Evol. Equ.*, (2011), to appear.
64. A. Fiaschi, D. Knees, U. Stefanelli. Young-measure quasi-static damage evolution, *Arch. Ration. Mech. Anal.*, to appear 2011.
65. A. Mielke, U. Stefanelli. Linearized plasticity is the evolutionary Γ -limit of finite plasticity, *J. Eur. Math. Soc. (JEMS)*, to appear 2011.
66. R. Rossi, G. Savaré, A. Segatti, U. Stefanelli. A variational principle for gradient flows in metric spaces. *C. R. Math. Acad. Sci. Paris*, 349 (2011), 1225–1228.
67. S. Frigeri, U. Stefanelli. Existence and time-discretization for the finite-strain Souza-Auricchio constitutive model for shape-memory alloys, *Contin. Mech. Thermodyn.*, 24 (2012), 1:63–77.
68. M. Eleuteri, L. Lussardi, U. Stefanelli. Thermal control of the Souza-Auricchio model for shape memory alloys, *Discrete Contin. Dyn. Syst.-S*, to appear, 2012.
69. A.-L. Bessoud, M. Kružík, U. Stefanelli. A macroscopic model for magnetic shape-memory single crystals, *Z. Angew. Math. Phys.*, to appear, 2012.

Technical reports and preprints

70. D. Bucur, G. Buttazzo, U. Stefanelli. Shape flows for spectral optimization problems, Preprint IMATI-CNR 14PV11/10/0, 2011.
71. M. Liero, U. Stefanelli. A new principle for Lagrangian mechanics, Preprint IMATI-CNR 1PV12/1/0, 2012.
72. M. Liero, U. Stefanelli. Weighted Inertia-Dissipation-Energy functionals for semilinear equations, Preprint IMATI-CNR 6PV12/5/0, 2012.

Proceedings

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