Curriculum Vitæ – Elisa Davoli

April 17th, 2024

Personal data

Year and place of birth: 1985, Italy
Citizenship: Italian
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Research interests

Analysis of partial differential equations, calculus of variations, and their applications to problems in materials science, biology, and image reconstruction.

Professional career

- From March 1st, 2022: Full Professor, Institute of Analysis and Scientific Computing, TU Wien (Vienna).

- From July 1st, 2021 to February 28th, 2022: Associate Professor, Institute of Analysis and Scientific Computing, TU Wien (Vienna).

- From January 1st, 2021 to June 31st 2021: Tenure Track Assistant Professor, Institute of Analysis and Scientific Computing, TU Wien (Vienna).

- January 2020 – December 2020: (FWF) Elise Richter fellow and Head of the research group: Multiscale Calculus of Variations, Institute of Analysis and Scientific Computing, TU Wien (Vienna).

- June 2019 – January 2020: Project leader and (FWF) Elise-Richter fellow. Head of the research group: Multiscale Calculus of Variations and PDEs, Faculty of Mathematics, University of Vienna.

- January 2017 – May 2019: University assistant in the group of Applied Mathematics and Modeling (Ulisse Stefanelli), Faculty of Mathematics, University of Vienna.

- June 2015 – January 2017: FWF Postdoc in the group of Applied Mathematics and Modeling (Ulisse Stefanelli), Faculty of Mathematics, University of Vienna.

- September 2012 – May 2015: Postdoctoral research associate at the Department of Mathematical Sciences (Irene Fonseca), Carnegie Mellon University, Pittsburgh (PA), USA.

Education

- November 4th, 2019: Habilitation defense at the Faculty of Mathematics, University of Vienna.
  Thesis title: *Multiscale problems in mechanics of materials*.

- October 26th, 2012: Ph.D. in Applied Mathematics, SISSA/ISAS (Trieste), Sector of Functional Analysis and Applications.
  Thesis title: *Thin structures in nonlinear elasticity and in plasticity: a variational approach*.

  Advisor: Maria Giovanna Mora.

- July 16th, 2009: M.Sc. in Mathematics, University of Trieste (Joint curriculum between SISSA/ISAS and the University of Trieste), with mark 110/110 with honours.

  Thesis title: *Convergence of equilibria of thin elastic rods under physical growth conditions for the energy density (in Italian)*.

  Advisor: Maria Giovanna Mora.

- July 24th, 2007: B.Sc. in Computer Engineering and Automation, Università Politecnica delle Marche, with mark 110/110 with honours.

  Thesis title: *Some strategies for distributed control in problems of rendez-vous (in Italian)*.

  Advisor: Giuseppe Conte.

- High school degree, June 2004: Liceo Scientifico Statale Luigi di Savoia, Ancona, with mark 100/100 with honours.

Third-party funding obtained as Principal Investigator

Personal grants

- FWF START Project "Tunable materials: geometry, nonlocality, chirality" (1.2 M Euro; 6 years, Jan. 2021 – Dec. 2026).

- FWF Elise Richter grant "High contrast materials in plasticity and magnetoelasticity" (338K Euro; 4 years, started in June 2019).

SFB

- I am PI of the project part "Nonlocal challenges in continuum mechanics" of the FWF-SFB 65 "Taming complexity in partial differential systems" (Project-part budget: 278 K Euros; 4 years, March 2021 – Feb. 2025).

International projects

- FWF-GAČR (Austria-Czech Republic) Project "Large Strain Challenges in Materials Science" (366K Euro; 3 years, started in April 2019). The PIs of the project are Martin Kružík (Czech PI) and myself (Austrian PI).

- OeAD Project "Mathematical Frontiers in Large Strain Continuum Mechanics" (5.8K Euro; 2 years, started in January 2019), in the framework of the WTZ (Scientific and technological cooperation) funding scheme. The PIs of the project are Martin Kružík (Czech PI) and myself (Austrian PI).

Third-party funding obtained as Co-Applicant

- FWF Lise Meitner grant "Optimal control & design problems for piezoelectric materials" (164K Euro; 2 years, approved for funding in March 2021). The PI of the project was Idriss Mazari. Declined due to permanent position of Idriss Mazari in France.

- FWF Lise Meitner grant "Mappings of Finite Distortion for Nonlinear Solid Mechanics" (159K Euro; 2 years, June 2019 - March 2021). The PI of the project was Anastasia Molchanova.

Other grants

- I am currently acting for PI ad Interim for the FWF Stand Alone Project of Stefano Almi "Alternate Minimization in Fracture Mechanics".

- Grant for the organization of the ESI (Erwin Schrödinger Institute) Workshop "New perspectives in Shape and Topology Optimization" in December 2023 (11.5K Euro). Organizers: Elisa Davoli, Idriss Mazari, Kevin Sturm.

- Grant for the organization of the CIRM (Centre International de Rencontre Mathématiques) Workshop "Beyond Elasticity: Advances and Research Challenges" in May 2022. Organizers: Marco Bonacini, Riccardo Cristoferi, Elisa Davoli, Marco Morandotti.

- Grant for the organization of the ESI (Erwin Schrödinger Institute) Workshop "New trends in the variational modeling of failure phenomena" in August 2018 (19K Euro). Organizers: Elisa Davoli, Manuel Friedrich, and Riccardo Scala.

Honours and awards

- Summer 2020: Winner of a Professorship in Calculus of Variations at the University of Innsbruck (declined).

- Winner of one of the two **Richard-von-Mises prizes 2020 of the GAMM**.

- Since April 2019, member of the **Young Academy of the Austrian Academy of Sciences**.

- Winner of the **2018 Faculty Teaching Award** of the Faculty of Mathematics of the University of Vienna. The prize is given each year both to a Postdoc and to a PhD student for outstanding teaching services.

- 2010: Winner of the **Marco Reni Graduation prize** awarded by the University of Trieste.

- November 2009: SISSA/ISAS Diploma Supplement for students of the joint curriculum between SISSA/ISAS and the University of Trieste.

- October 2009: Winner of a Ph.D. scholarship at SISSA/ISAS, Sector of Functional Analysis and Applications, for the academic years 2009-2010, 2010-2011, and 2011-2012. The fellowship is assigned yearly to at most 8 candidates, evaluated upon successful completion of both a written and an oral entry test.

- September 2007: Winner of a scholarship from SISSA/ISAS for students of the M.Sc. in Mathematics, joint curriculum between SISSA/ISAS and the University of Trieste. The fellowship is assigned yearly to at most 6 candidates, evaluated upon successful completion of both a written and an oral entry test.

- 2004 - 2007: Winner of the annual scholarship "Esonero Superbravo" from Università Politecnica delle Marche.

Language skills

- **Italian**: Mother tongue.

- **English**: fluent speaking, excellent writing and reading skills. Certification: FCE grade B, level B2 (2003). Advanced English course attended in SISSA/ISAS in autumn-winter 2010. I lived and taught for three years in the US from 2012 to 2015.

- **German**: fluent speaking, writing and reading skills. European Level B2 achieved in June 2017 at the Sprachenzentrum of the University of Vienna. I already taught in German both at the University of Vienna and at TU Wien. I currently teach in German at TU Wien.

- **French**: scholastic knowledge.

Organization activity

- 2024: Workshop "Bio PDE-Days", co-organized with Ansgar Juengel and Sara Merino-Aceituno, at TU Wien in February 2024.

- 2023: Workshop "New perspective in Shape and Topology Optimization", co-organized with Idriss Mazari and Kevin Sturm, at the ESI (Erwin Schrödinger Institute), Vienna (Austria) in December 2023.

- 2023: Workshop "3rd Austrian Calculus of Variations Day", co-organized with Aris Daniilidis, at the TU Wien, Vienna (Austria) in November 2023.

- 2023: GAMM Seminar on Microstructure, co-organized with G. Dolzmann, D. Praetorius, B. Schweizer, and K. Weinberg at TU Wien.

- 2022: Workshop "Beyond Elasticity: Advances and Research Challenges", co-organized with M. Bonacini, R. Cristoferi, and M. Morandotti at CIRM (Marseille, France).

- 2022: Workshop "Variational Challenges in Materials Science and Imaging", co-organized with R. Ferreira and G. Leoni at TU Wien.

- 2020: Minisymposium "Recent advances on evolutionary phase-transition problems", co-organized with Jan-Frederik Pietschmann, within the 2020 DMV conference (Chemnitz, Germany).

- 2019: Special Session "Multiscale Problems in the Calculus of Variations", co-organized with Rita Ferreira, within the 2019 Joint AMS Mathematics Meetings in Baltimore (Maryland, USA).

- 2018: Workshop "New trends in the variational modeling of failure phenomena", co-organized with Manuel Friedrich, and Riccardo Scala, at the ESI (Erwin Schrödinger Institute), Vienna (Austria) in August 2018.

- 2018: YR-minisymposium "Variational aspects of multiscale modeling in material sciences", co-organized with Manuel Friedrich at the GAMM 2018, Munich (Germany).

Referee activity

- Journal of Elasticity

- Journal of Nonlinear Science

- JEMS

- Annali di Matematica Pura ed Applicata

- Annales de l'Institut Henri Poincaré.

- Mathematical Control and Related Fields.

- AIMS - Mathematics.

- ZAMM - Journal of Applied Mathematics and Mechanics.

- Communications in Pure and Applied Analysis.

- SIAM Journal of Mathematical Analysis.

- Proceedings of the Royal Society of Edinburgh Sect. A.

- Archive for Rational Mechanics and Analysis.

- Journal of Differential Equations.

- ESAIM Proceedings.

- Calculus of Variations and Partial Differential Equations.

- Mathematics and Mechanics of solids.

- Journal of Statistical Physics.

- Continuum Mechanics and Thermodynamics.

- Mathematical Models and Methods in Applied Sciences.

- Mathematische Nachrichten.

- Nonlinear Analysis: Real World Applications.

Further professional service

- Since March 2024: member of the Faculty Council of TU Wien.

- March 2023: referee for the PhD thesis of Erica Ipocoana at the University of Modena and Reggio Emilia.

- Spring 2023: external member for the selection committee for a Tenure Track position in Applied Mathematics at the University of Graz.

- July 2022: faculty member for the Habilitation committee of Sandra Müller and Mate Gerencser at TU Wien.

- July 2022: referee for the PhD thesis of Marin Buzancic at the University of Zagreb.

- November 2020: referee for the PhD thesis of Alberto Maione at the University of Trento.

- June 2020: Member of the committee for the PhD defense of Idriss Mazari at the Paris Sorbonne University.

- February 2020: Mittelbau member for the Habilitation committee of Joscha Gedicke at the University of Vienna.

Research visits

- May 14th – 17th, 2019, Institute of Information Theory and Automation, Prague (Czech Republic). Host: Martin Kružík.

- May 8th – 10th, 2019, University of Trento (Italy). Host: Marco Bonacini.

- January 21st – 23rd, 2019, Carnegie Mellon University, Pittsburgh (USA). Hosts: Irene Fonseca and Giovanni Leoni.

- January 13th – 15th, 2019, Indiana University, Bloomington (USA). Host: Roger Temam.

- December 17th – 21st, 2018, Università degli Studi di Pavia (Italy). Host: Maria Giovanna Mora.

- November 11th – 15th, 2018, Institute of Information Theory and Automation, Prague (Czech Republic). Host: Martin Kružík.

- April 23rd – 25th, 2018, Institute of Information Theory and Automation, Prague (Czech Republic). Host: Martin Kružík.

- February 26th – March 1st, 2018, University of Brescia (Italy) (Hosts: Giovanna Bonfanti and Riccarda Rossi).

- June 27th – 30th, 2017, Institute of Information Theory and Automation, Prague (Czech Republic). Host: Martin Kružík.

- May 9th – 12th, 2017, WIAS Berlin (Germany). Host: Marita Thomas.

- February 20th – 22nd, 2017, Università di Padova (Italy). Host: Annalisa Cesaroni.

- November 14th – 17th, 2016, University of Zagreb (Croatia). Host: Igor Velčić.

- October 17th – 21st, 2016, Institute of Information Theory and Automation, Prague (Czech Republic). Host: Martin Kružík.

- March 20th – 24th, 2016, Institute of Information Theory and Automation, Prague (Czech Republic). Host: Martin Kružík.

- November 11th – 13th, 2015, University of Regensburg (Germany). Host: Carolin Kreisbeck.

- October 19th – 23rd, 2015, SISSA, Trieste (Italy). Host: Marco Morandotti.

- September 25th – October 3rd, 2014, University of Vienna (Austria). Hosts: Paolo Piovano and Ulisse Stefanelli.

- June 29th – July 5th, 2014, Università degli Studi di Pavia (Italy). Host: Maria Giovanna Mora.

- February 14th – 21st, 2014, University of Vienna (Austria). Hosts: Paolo Piovano and Ulisse Stefanelli.

- July 1st – 5th, 2013, Università degli Studi di Pavia (Italy). Host: Maria Giovanna Mora.

- November 7th – 9th, 2012, Courant Institute, New York (USA). Host: Gilles Francfort.

Invited talks at conferences

- February 22nd 2024, Cahn-Hilliard and Allen-Cahn equations in Bio-Medicine (Pavia, Italy).

- November 7-8, 2023, Nonlinear Partial Differential Equations in Salzburg (Salzburg, Austria).

- September 20-22, 2023, Variationals Models for Material Failure (Erlangen, Germany).

- April 3rd - 8th, 2023, Banff workshop Compensated Compactness and applications to materials.

- April 19th - 22nd, 2022, workshop Polycrystals: Microstructure and Plasticity (online talk).

- January 13th - 14th, 2022, (online) Workshop *Topological Patterns in Magnetic Materials*.

- October 27th - 29th, 2021, (online) Workshop *Nonlocality: Analysis, Numerics and Applications*.

- March 15th, 2021, Richard von Mises lecture at the GAMM (online).

- February 15th - 16th, 2021, (online) KTGU Workshop.

- January 28th - 29th, 2021, (online) 20th GAMM Seminar on Microstructures.

- December 1st - 4th, 2020, Online workshop *On the Intersection of Set-Valued Analysis, Plasticity, and Friction*.

- November 18th - 20th, 2019, Workshop *Recent Advances in Mechanics and Mathematics of Materials* Universitá La Sapienza, Rome (Italy).

- October 29th – November 1st, Workshop *Mathematics for Mechanics*, UTIA, Prague (Czech Republic).

- August 5th – 8th, 2019, Session *Bilevel Optimization in Imaging* (ICCOPT 2019), Berlin (Germany).

- July 15th – 17th, 2019, Minisymposium *Mathematical Models for Solid Mechanics and Soft Structures* (ICIAM 2019), Valencia (Spain).

- July 15th – 17th, 2019, Minisymposium *New challenges in the Homogenization of Partial Differential Equations* (ICIAM 2019), Valencia (Spain).

- July 1st – 5th, 2019, Workshop *Calculus of Variations on Schiermonnikoog*, Schiermonnikoog (Netherlands).

- March 18th – 21st, 2019, *Workshop on Calculus of Variations*, University of Sussex, Brighton (UK).

- November 4th – 6th, 2018, Workshop *Women in mathematical materials science*, Regensburg (Germany).

- September 13th – 15th, 2018, *Fifth Workshop on thin structures*, Naples (Italy).

- July 2nd – 6th, 2018, Minisymposium *Variational approaches to problems in continuum mechanics*, SIMAI Conference, Rome (Italy).

- May 20th – 25th, 2018, BIRS Workshop *Topics in the Calculus of Variations: Recent Advances and New Trends*, Banff (Canada).

- February 4th – 9th, 2018, Workshop *Variational Methods for the Modelling of Inelastic Solids*, Oberwolfach (Germany).

- June 14th – 16th, 2017, Conference *From students to mathematicians, an excellent master program in Trieste*, SISSA/ISAS and University of Trieste (Italy).

- April 3rd – 6th, 2017, Workshop *Modern challenges in continuum mechanics*, Zagreb (Croatia).

- February 13th – 17th, 2017, *Miniworkshop on dislocations, plasticity, and fracture*, SISSA/ISAS, Trieste (Italy).

- September 13th – 16th, 2016, *Meeting on Applied Mathematics and Calculus of Variations*, Rome (Italy).

- September 5th – 9th, 2016, INdAM-ISIMM Workshop *Symposium on Trends in Application of Mathematics to Mechanics (STAMM)*, Rome (Italy).

- July 11th – 15th, 2016, ESI Workshop *Variational and Hamiltonian structures: models and methods*, Vienna (Austria).

- July 1st – 5th, 2016, Minisymposium *New Trends in Calculus of Variations and Partial Differential Equations* (AIMS Conference 2016), Orlando (Florida).

- July 1st – 5th, 2016, Minisymposium *Advances in the mathematical modeling of failure phenomena and interfaces in materials* (AIMS Conference 2016), Orlando (Florida).

- May 23rd – 27th, 2016, Minisymposium *New Trends in Calculus of Variations and Partial Differential Equations* (9th European conference on Elliptic and Parabolic Problems), Gaeta (Italy).

- May 23rd – 27th, 2016, Minisymposium *Variational Models in Materials and Structures* (9th European conference on Elliptic and Parabolic Problems), Gaeta (Italy).

- March 7th – 11th, 2016, YR Minisymposium *Multiscale Evolutionary Problems*, GAMM-DMV meeting, TU Braunschwein (Germany).

- January 21st, 2016, DK Workshop *Dissipation and Dispersion in Nonlinear PDEs*, Reichenau (Austria).

- July 1st – 3rd, 2015, Workshop *Trends in Nonlinear Analysis 2015*, SISSA, Trieste (Italy).

- June 10th – 13th, 2015, Minisymposium *Homogenization and its Contemporary Stochastic Aspects* (AMS-EMS-SPM International Meeting 2015), Porto (Portugal).

- June 10th – 13th, 2015, Minisymposium *Mathematical Models for Materials* (AMS-EMS-SPM International Meeting 2015), Porto (Portugal).

- April 18th – 19th, 2015, Workshop *Recent developments in Continuum Mechanics and PDEs*, Lincoln (Nebraska, USA).

- September 22nd – 24th, 2014, Workshop *Variational Modeling in Solid Mechanics*, Udine (Italy).

- September 15th – 18th, 2014, PIRE Workshop *Atomistic and Multi-Scale Models of Materials*, University of Warwick, Warwick, England.

- June 25th – 28th, 2012, Minisymposium *Variational methods for problems in applied sciences II* (SIMAI 2012), Torino (Italy).

- May 10th – 12th, 2012, Workshop *Young Women in PDEs*, Bonn (Germany).

- September 12th – 15th, 2011, Minisymposium *Mathematical contributions to the study of thin structures* (AIMETA 2011), Bologna (Italy).

Invited seminars

- April 28th, 2022, Colloquium Talk at the University of Graz (online).

- March 7th, 2022, Asymptotics, Operators, and Functionals Seminar (online).

- January 22nd, 2021, APDEs online seminar, Imperial College (London, England).

- November 13th, 2020, Applied Math Zoom Seminar, University of Warwick (England).

- May 21st, 2020, Webinar at the University of Western Australia, Perth (Australia).

- May 9th, 2019, Seminar at the University of Trento (Italy).

- January 22nd, 2019, CNA Seminar, Carnegie Mellon University (USA).

- January 14th, 2019, Joint Institute and PDE/Applied Math Seminar, Indiana University (USA).

- December 18th, 2018, Seminar at the Mathematics Department, University of Pavia, (Italy).

- April 17th, 2018, SFB Colloquium, TU Munich (Germany).

- April 26th, 2017, DK Seminar, University of Vienna (Austria).

- February 21st, 2017, Seminario di Equazioni Differenziali e Applicazioni, Università di Padova (Italy).

- November 14th, 2016, Seminar at the Mathematics Department, University of Zagreb (Croatia).

- October 17th, 2016, Nečas Seminar on continuum mechanics, Charles University, Prague (Czech Republic).

- March 22nd, 2016, Seminar on Partial Differential Equations, Institute of Mathematics of CAS, Prague (Czech Republic).

- November 13th, 2015, Oberseminar Analysis, University of Regensburg, (Germany).

- October 21st, 2015, CalcVar Seminar in SISSA, Trieste (Italy).

- July 4th, 2013, Seminar at the Mathematics Department, University of Pavia, (Italy).

- April 20th, 2012, Seminar at the Mathematics Department, University of Regensburg, (Germany).

- February 20th, 2012, Seminar at the Max Planck Institute for Mathematics in the Sciences, Leipzig (Germany).

Other talks

- March 15th – 19th, 2021, *Section on Applied Analysis*, GAMM 2020/21, (online) Kassel (Germany).

- October 17th –18th, 2019, *1st Austrian Calculus of Variations Day*, University of Vienna (Austria).

- February 18th – 22nd, 2019, *Section on Applied Analysis*, GAMM 2019, Vienna (Austria).

- March 19th – 23rd, 2018, *Section on Applied Analysis*, GAMM 2018, Munich (Germany).

- October 9th – 11th, 2013, ERC Workshop *Energy/Entropy-Driven Systems and Applications*, WIAS, Berlin (Germany).

- CNA Working Group *Topics in Homogenization Theory* (Spring 2014): two talks on *Homogenization theory and divergence form operators*.

- CNA-PIRE Working Group *Calculus of Variations* (Spring 2013): two talks on *An introduction to Γ-convergence* and *Ambrosio-Tortorelli approximation of the Mumford-Shah functional*.

- February 5th – 10th, 2012, Conference *XXII Convegno Nazionale di Calcolo delle Variazioni*, Levico Terme (Italy).

Poster presentation

- June 9th – 12th, 2013, SIAM conference *Mathematical aspects of material sciences*, Philadelphia (USA).

Outreach, gender mainstreaming, and other mathematical activities

- Since 2022: Mentor for the association of Austrian Women in Mathematics and for the network of Women in Mathematics at TU Wien.

- February 23rd, 2021: Panelist at the "First Austrian Day of Women in Mathematics".

- An article with the title "Smart materials" about my research activity has been published in the first printed issue of the magazine "Alexandria" in December 2020.

- An overview on the topic "From nonlocal to local Cahn-Hilliard equations" based on my papers with H. Ranetbauer, L. Scarpa, and L. Trussardi has been published in the journal "Internationale Mathematische Nachrichten" of December 2020 (num. 245).

- An interview about my FWF START project has been published in the Scilog blog of the FWF. The article can be found at the following link.

- An article about my research in homogenization (in German) has been published on December 4th, 2019, in the blog of the Young Academy of the Austrian Academy of Sciences in the journal "Der Standard". The article is available at the following link.

- February 7th – 8th, 2015: Speaker at the Conference "Multiscale Modeling and Emergence", at the Center for Philosophy of Science, organized by the Philosophy Department at the University of Pittsburgh, Pittsburgh, PA (USA). I presented an introduction to the mathematical theory of homogenization.

- September 18th, 2014: Speaker at the PIRE Roundtable on "Managing International Research Collaborations", University of Warwick, Warwick, England.

- October 2nd, 2013: Speaker at the PIRE Roundtable on "The International Researcher", SISSA/ISAS, Trieste (Italy).

- September 23rd, 2011: I collaborated to the "Notte dei ricercatori" (**European Researchers night**) organized by SISSA/ISAS jointly with other research centers in Trieste (Italy).

- 2011: **member of the project GOMUT(S)**, in collaboration with the University of Trieste (website in Italian). I taught a short course in the high school Liceo Scientifico Preseren, in preparation to the Italian national phase of the Mathematics Olympiads.

- 2003 and 2004: bronze medal in the Italian national phase of the Mathematics Olympiads.

Teaching

During the winter semester 2023 I taught the class "Mathematik 1 für Elektrotechnik" for first-year Bachelor students in Engineering at TU Wien (in German, approx. 250 student). I was in charge of both the lectures, and the exercises (8 Exercise groups, 6 tutors), as well as of the weekly office hours. I am currently teaching the class "Mathematik 2 für Elektrotechnik" and I am co-organizing the seminar "Theory of Currents" together with E. Tasso.

During the summer semester 2023 I taught the class "VO Gamma-convergence and applications" and will organize the seminar "Rate-independent processes and applications" at TU Wien.

The available **teaching evaluations** for the classes I taught in Vienna and for the last class that I taught at Carnegie Mellon University can be downloaded at the following link.

During the winter semester 2022 I taught the master class " VO Modeling with Partial Differential Equations" at TU Wien.

During the summer semester 2021 I taught the class "VO Mathematical theory of Elasticity" at TU Wien.

During the winter semester 2020 I taught the following classes at TU Wien:

- "VO Functions of bounded variation".

- exercise course " UE Analysis 1" (in German).

During Summer 2020 (13-19 September 2020) I taught the mini-course (3 90-minutes lectures and 2 1-hour tutorials) *Effective theories for composite materials: from two-scale convergence to chirality effects* within the Summer school of the Vienna School of Mathematics at Weißensee (Austria).

The classes I taught at the University of Vienna are collected below.

- Summer semester 2019: exercise course "UE Gewöhnliche Differentialgleichungen" (in German).

- Summer semester 2018: course "VO Topics in Calculus of Variations" (co-instructor with P. Piovano and U. Stefanelli).

- Summer semester 2018: exercise course "UE Funktionalanalysis".

- Winter semester 2017: exercise course "UE Einführung in die Analysis".

- Summer semester 2017: exercise course "UE Angewandte Mathematik für das Lehramt".

During summer 2016 I taught a minicourse (three 90 minutes lectures) at a Master/PhD level during the CENTRAL Summer School on Analysis and Numerics for Partial Differential Equations in Berlin:

- Dimension Reduction Problems for Multiscale Materials in Nonlinear Elasticity.

The classes I taught at Carnegie Mellon University are summarized below.

- Spring semester 2015: course "Principles of Real Analysis II".

- October 30th, 2014: speaker in the "Undergraduate Colloquium" series.

- Fall semester 2013: course "Functions of complex variables".

- Spring semester 2013: course "Principles of Real Analysis II".

Mentoring activity

Master students

- T. Unterberger (current), jointly with E. Tasso.

- J. Deutsch (2022, TU Wien), jointly with V. Pagliari.

- L. Schmeller (2019, Uni Münster), jointly with M. Friedrich.

PhD students

- J. Deutsch (2022–)

- L. Happ (2022–)

- R. Giorgio (2022–)

- S. Riccó (2022–)

- M. Bresciani (2019-2022)

Postdocs

- A. Kubin (2023–)

- L. D'Elia (2022–)

- L. Lombardini (2022–)

- E. Tasso (2022–)

- C. Gavioli (2021–2024)

- V. Pagliari (2019-2023)

- I. Mazari (2020-2021)

- A. Molchanova (2019-2021)

Publications and preprints

Submitted papers

53) E. Davoli, K. Nik, U. Stefanelli, G. Tomassetti. An existence result for accretive growth in elastic solids.
Submitted, 2024.

52) E. Davoli, C. Gavioli, L. Lombardini
Existence results for Cahn-Hilliard-type systems driven by nonlocal integrodifferential operators with singular kernels.
Submitted, 2024.

51) E. Davoli, G. Di Fratta, R. Giorgio
A Bourgain-Brezis-Mironescu formula accounting for nonlocal antisymmetric exchange interactions.
Submitted, 2024.

50) E. Davoli, U. Stefanelli.
Level sets of Eikonal functions are John regular.
Submitted, 2023.

49) E. Davoli, E. Rocca, L. Scarpa, L. Trussardi.
Local asymptotics and optimal control for a viscous Cahn-Hilliard-reaction-diffusion model for tumor growth.
Submitted, 2023.

48) G. Bonfanti, E. Davoli, R. Rossi.
A coupled rate-dependent/rate-independent system for adhesive contact in Kirchhoff-Love plates.
Submitted, 2023.

47) E. Davoli, R. Ferreira, I. Fonseca, J.A. Iglesias.
Dyadic partition-based training schemes for TV/TGV denoising.
Submitted, 2023.

46) E. Davoli, G. Di Fratta, A. Fiorenza, L. Happ.
A modular Poincaré-Wirtinger type inequality on Lipschitz domains for Sobolev spaces with variable exponents.
Submitted, 2023.

45) E. Davoli, C. Gavioli, V. Pagliari.
Homogenization of high-contrast media in finite-strain elastoplasticity.
Submitted, 2022.

Accepted papers

44) E. Davoli, G. Di Fratta, V. Pagliari.
Sharp conditions for the validity of the Bourgain-Brezis-Mironescu formula.
Proc. Royal Soc. Edinburgh: Section A Mathematics. Published online (2024): 1–24.

43) M. Buzancic, E. Davoli, I. Velcic.
Effective quasistatic evolution models for perfectly plastic plates with periodic microstructure. Calc. Var. Partial Differential Equations (2024) 63: 93.

42) E. Davoli, C. Gavioli, V. Pagliari.
A homogenization result in finite plasticity.
Calc. Var. Partial Differential Equations (2024) 63: 72.

41) E. Davoli, L. D'Elia, J. Ingmanns.
Stochastic homogenization of micromagnetic energies and emergence of magnetic skyrmions.
J. Nonlinear Science 34 (2024), Art. 30.

40) M. Buzancic, E. Davoli, I. Velcic.
Effective quasistatic evolution models for perfectly plastic plates with periodic microstructure: the limiting regimes.
Adv. Calc. Var. (2024).

39) S. Almi, E. Davoli, M. Friedrich.
Non-interpenetration conditions in the passage from nonlinear to linearized Griffith fracture.
J. Math. Pure Appl. 175 (2023), 1–36.

38) E. Davoli, R. Ferreira, C. Kreisbeck, H. Schönberger.
Structural changes in nonlocal denoising models arising through bi-level parameter learning.
Applied Mathematics and Optimization 88 (2023), Art. 9.

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