LUCA LUSSARDI

Curriculum vitae

GENERAL INFORMATION

- Born in Brescia (Italy) on December 15, 1977.
- Working address: Politecnico di Torino, c.so Duca degli Abruzzi 24, 10129 Torino, Italy.
- Mail: luca.lussardi@polito.it
- Tel: 39 011 0907508

EDUCATION

- Degree in Mathematics, Università Cattolica del Sacro Cuore (Brescia, Italy), 2001.
- Ph.D. in Mathematics and Statistics, Università di Pavia (Pavia, Italy), 2005.

PROFESSIONAL EXPERIENCE

- INdAM postdoc at École Polytechnique (Palaiseau, France), January 1, 2007 - March 31, 2007.
- Postdoc at Università di Brescia (Brescia, Italy), April 1, 2007 - July 31, 2008.
- Postdoc at Politecnico di Torino (Torino, Italy), September 1, 2008 - February 28, 2010.
- Postdoc at Technische Universität Dortmund (Dortmund, Germany), March 1, 2010 - May 31, 2011.
- Researcher in Geometry at Università Cattolica del Sacro Cuore (Brescia, Italy), June 1, 2011 - January 31, 2017.
- Researcher in Mathematical Analysis at Politecnico di Torino (Torino, Italy), February 1, 2017 - July 26, 2020.
- Associate professor of Mathematical Analysis at Politecnico di Torino (Torino, Italy), July 27, 2020 - present.

AWARDS & HABILITATIONS

- Agostino Gemelli Prize, 2001.
- National Scientific Habilitation for the position of Associate professor of Mathematical Analysis, 2017.
- National Scientific Habilitation for the position of Full professor of Mathematical Analysis, 2020.

DIDACTIC ACTIVITY

Teaching activity for Bachelor and Master programs

- Exercise course of *Mathematical Analysis II* for the Bachelor program in Management Engineering at Politecnico di Milano (Milano, Italy), during the years 2001-2006.
- Exercise course of *Mathematical Analysis I* for the Bachelor programs in Engineering at Università di Pavia (Pavia, Italy) during the years 2002-2005.
- Exercise course of *Mathematical Analysis II* for the Bachelor programs in Engineering at Università di Pavia (Pavia, Italy), 2004.
- Exercise course of *Measure Theory and Lebesgue Spaces* for the Bachelor program in Mathematics at Università di Pavia (Pavia, Italy), 2005.
- *Mathematics and Statistics* for the Bachelor program in Pharmacy at Università di Pavia (Pavia, Italy), 2006.
- Exercise course of *Differential Geometry* for the Bachelor program in Mathematics at Università Cattolica del Sacro Cuore (Brescia, Italy) during the years 2006-2009.
- Exercise course of *Mathematical Analysis II* for the Bachelor program in Aeronautical Engineering at Politecnico di Torino (Torino, Italy), 2009.
- *Advanced Engineering Mathematics* (in english) for the Master program in Automation and Robotics at Technische Universität Dortmund (Dortmund, Germany), 2010.
- *Differential Geometry* for the Master program in Mathematics at Università Cattolica del Sacro Cuore (Brescia, Italy), years 2011-2016.

- Exercise course of *General Topology* for the Bachelor program in Mathematics at Università Cattolica del Sacro Cuore (Brescia, Italy) during the years 2011-2016.
- *Differential Geometry* (in english) for the Master program in Mathematics at Università di Verona (Verona, Italy), 2014 and 2015.
- *Stochastic processes* for the Master program in Mathematics at Università Cattolica del Sacro Cuore (Brescia, Italy), 2015 and 2016.
- *Probability* (in collaboration) for the Bachelor program in Mathematics at Università di Verona (Verona, Italy), 2016.
- *Mathematical Methods* (in collaboration, in english) for the Bachelor programs in Engineering at Politecnico di Torino (Torino, Italy), 2017 and 2018.
- *Mathematical Analysis I* for the Bachelor programs in Engineering at Politecnico di Torino (Torino, Italy), since 2018.
- Exercise course of *Equations of Mathematical Physics* for the Bachelor program in Mathematics for Engineering at Politecnico di Torino (Torino, Italy) 2018 and 2019.
- *Mathematical Methods B* (in collaboration, in english) for the Bachelor program in Information Technology and Automation Systems in Industry, Turin Polytechnic University in Tashkent (Tashkent, Uzbekistan), since 2019.
- *Fundamentals of Mathematics* for the Bachelor program in Industrial Manufacturing Technologies at Politecnico di Torino (Torino, Italy), since 2019.
- *Mathematical Analysis I* for the special program *Talenti* at Politecnico di Torino (Torino, Italy), 2019.
- Exercise courses of *Functional Analysis and Partial Differential Equations* (in collaboration) for the Bachelor program in Mathematics for Engineering at Politecnico di Torino (Torino, Italy), since 2020.
- *Laboratory of Problem Solving 1* for the special program *Intraprendenti* at Politecnico di Torino (Torino, Italy), 2020.

Teaching activity for Ph.D. programs and for High School teachers

- *Calculus of Variations and Partial Differential Equations* (in collaboration, english) for Ph.D. students at Technische Universität Dortmund (Dortmund, Germany), 2010.
- *Stochastic Partial Differential Equations* (in collaboration, english) for Ph.D. students at Technische Universität Dortmund (Dortmund, Germany), 2010.
- *Gradient flows and optimal transport* (english) for Ph.D. students at Technische Universität Dortmund (Dortmund, Germany), 2011.
- *Didactic of Mathematics* for High School teachers at Università Cattolica del Sacro Cuore (Brescia, Italy), years 2012-2014.
- *Hysteresis and micromagnetism: a variational approach* (in collaboration, in english) for the Ph.D. program in Pure and Applied Mathematics at Politecnico di Torino (Torino, Italy), 2014.
- *Mathematical methods for multiscale problems in the study of magnetic materials* (in collaboration, in english) for the Ph.D. program in Pure and Applied Mathematics at Politecnico di Torino (Torino, Italy), 2015.
- *Introduction to homogenization methods and multiscale problems* (in collaboration) for the Ph.D. program in Pure and Applied Mathematics at Politecnico di Torino (Torino, Italy), 2018.
- *The Plateau problem in the Calculus of Variations* (in english) for Ph.D. students in the framework of the Erasmus+ program at Universität Wien (Wien, Austria), 2018.
- *The Plateau problem in the Calculus of Variations* for the Ph.D. program in Pure and Applied Mathematics at Politecnico di Torino (Torino, Italy), 2018.

Supervised students

- 17 supervised Bachelor theses.
- 2 co-supervised Bachelor theses.
- 7 supervised Master theses:
  - The Master thesis of Stefano Marini has been published: *L. Lussardi, S. Marini and M. Veneroni, Stochastic homogenization of maximal monotone relations and applications, Netw. Heterog. Media 13 (2018), no. 1, 27-45*.
  - The Master thesis of Andrea Torricelli is contained in: *M. Eleuteri, L. Lussardi and A. Torricelli, Limits of non-local anisotropic perimeters, preprint ArXiv:2008.13110 (2020)*.
- 14 co-supervised Master theses:
  - The Master thesis of Giulia Bevilacqua has been published: *G. Bevilacqua, L. Lussardi and A. Marzocchi, Soap film spanning an elastic link, Quart. Appl. Math. 77 (2019), no. 3, 507-523*.

Attended courses

- *Teaching and learning in the Higher Education*, Politecnico di Torino (Torino, Italy), 2017.
- *EduHack-Hacking Education with Digital Pedagogies*, online course, 2020.

Didactic books

- A. Amadori e L. Lussardi, *Un'introduzione alla Teoria della Relatività*, Aracne editrice, Roma (Italy), 2009.
- A. Amadori e L. Lussardi, *Meccanica Quantistica non Relativistica*, Matematicamente.it editore, Lecce (Italy), 2009.
- L. Lussardi, *Esercizi di Analisi Matematica*, Matematicamente.it editore, Lecce (Italy), 2012.

Didactic talks

- *From the brachistochrone to Mumford-Shah: an introduction to the Calculus of Variations*, Università di Verona (Verona, Italy), October 2013.
- *The parsimonious of the universe: maxima and minima problems*, Università di Modena e Reggio Emilia (Modena, Italy), May 2017.
- *From Pythagora to tensor calculus: a trip in the history of Geometry*, Università di Modena e Reggio Emilia (Modena, Italy), February 2018.
- *Mathematics and soap bubbles*, Politecnico di Torino (Torino, Italy), June 2018.
- *Mathematics and parsimonious of the universe*, Politecnico di Torino (Torino, Italy), June 2018.
- *The art of measuring: from the Ancient Egypt to the Banach-Tarski paradox*, Università di Modena e Reggio Emilia (Modena, Italy), May 2020.
- *The universe is geometry: the general relativity in 15 minutes*, Politecnico di Torino (Torino, Italy), May 2020.

Other didactic activities

- Collaborator to the Teaching Lab *LaMpo* at Politecnico di Torino (Torino, Italy), since 2018.
- Member of the scientific committee of *Alfaclass Summer School of Mathematics* since 2019.

RESEARCH ACTIVITY

Research interests

- Calculus of Variations
- Geometric Measure Theory
- Partial Differential Equations
- Nonlinear Analysis

Research papers

- L. Lussardi, *Risultati di approssimazione per funzionali a discontinuità libera a crescita lineare*, Boll. UMI sez. A, serie VIII, vol. IX-A (Agosto 2006), 251-254.
- L. Lussardi and E. Vitali, *Non-local approximation of free discontinuity functionals with linear growth: the one-dimensional case*, Ann. Mat. Pura Appl. 186 (2007), no. 4, 722-744.
- L. Lussardi and E. Vitali, *Non-local approximation of free discontinuity problems with linear growth*, ESAIM Control Optim. Calc. Var. 13 (2007), no. 1, 135-162.
- L. Lussardi and M. Negri, *Convergence of non-local finite element energies for fracture mechanics*, Num. Funct. Anal. Optim. 28 (2007), no. 1-2, 83-109.
- L. Lussardi, *An approximation for the Mumford-Shah functional*, Int. J. Contemp. Math. Sci. 2 (2007), no. 25, 1237-1245.
- L. Lussardi, *An approximation result for free discontinuity functionals by means of non-local energies*, Math. Meth. Appl. Sci. 31 (2008), no. 18, 2133-2146.
- A. Giacomini and L. Lussardi, *Quasistatic evolution for a model in strain gradient plasticity*, SIAM J. Math. Anal. 40 (2008), no. 3, 1201-1245.
- P. Bonicatto and L. Lussardi, *Analysis of an integral equation arising from a variational problem*, Rapporto interno Politecnico di Torino 5 (Luglio 2009), 1-9.
- L. Lussardi, *A Stampacchia-type inequality for a fourth order elliptic operator on Kähler manifolds and applications*, Rend. Lincei Mat. Appl. 21 (2010), no. 2, 159-173.
- A. Chambolle, A. Giacomini and L. Lussardi, *Continuous limits of discrete perimeters*, ESAIM Math. Model. Numer. Anal. 44 (2010), no. 2, 207-230.

- M. Eleuteri, L. Lussardi and U. Stefanelli, *A rate-independent model for permanent inelastic effects in shape memory materials*, Netw. Heterog. Media 6 (2011), no. 1, 145-165.
- O. Bottauscio, V. Chiadò Piat, M. Eleuteri, L. Lussardi and A. Manzin, *Homogenization of random anisotropy properties in polycrystalline magnetic materials*, Physica B 407 (2012), 1417-1419.
- M. Eleuteri, L. Lussardi and U. Stefanelli, *Thermal control of the Souza-Auricchio model for shape memory alloys*, Discrete Contin. Dyn. Syst. Ser. S 6 (2013), no. 2, 369-386
- O. Bottauscio, V. Chiadò Piat, M. Eleuteri, L. Lussardi and A. Manzin, *Determination of the equivalent anisotropy properties of polycrystalline magnetic materials: theoretical aspects and numerical analysis*, Math. Models Methods Appl. Sci. 23 (2013), no. 7, 1217-1233.
- L. Lussardi and A. Magni, *Gamma-limits of convolution functionals*, ESAIM Control Optim. Calc. Var. 19 (2013), no. 2, 486-515.
- L. Lussardi and A. Marzocchi, *Surface energy arising from the behavior of lipid molecules in the water via Gamma-convergence*, Atti Accad. Peloritana Pericolanti Cl. Sci. Fis. Mat. Natur. 91 (2013), suppl. 1, A12, 10 pp.
- A. Chambolle, S. Lisini and L. Lussardi, *A remark on the anisotropic outer Minkowski content*, Adv. Calc. Var. 7 (2014), no. 2, 241-266.
- M. Eleuteri and L. Lussardi, *Thermal control of a rate-independent model for permanent inelastic effects in shape memory materials*, Evol. Equ. Control Theory 3 (2014), no. 3, 411-427.
- G.L. Celardo, P. Poli, L. Lussardi and F. Borgonovi, *Cooperative robustness to dephasing: Single-exciton superradiance in a nanoscale ring to model natural light-harvesting systems*, Phys. Rev. B 90, 085142 (2014).
- L. Lussardi, M.A. Peletier and M. Röger, *Variational analysis of a mesoscale model for bilayer membranes*, J. Fixed Point Theory Appl. 15 (2014), no. 1, 217-240.
- L. Lussardi, *On a Poisson's equation arising from magnetism*, Discrete Contin. Dyn. Syst. Ser. S 8 (2015), no. 4, 769-772.
- L. Lussardi, *A note on a phase-field model for anisotropic systems*, Asymptotic Anal. 94 (2015), no. 3-4, 241-254.
- L. Lussardi and M. Röger, *Gamma convergence of a family of surface-director bending energies with small tilt*, Arch. Rational Mech. Anal. 219 (2016), no. 3, 985-1016.
- L. Lussardi and E. Villa, *A general formula for the anisotropic outer Minkowski content of a set*, Proc. Roy. Soc. Edinburgh Sect. A 146 (2016), no. 2, 393-413.
- L. Lussardi and E. Mascolo, *A uniqueness result for a class of non strictly convex variational problems*, J. Math. Anal. Appl. 446 (2017), no. 2, 1687-1694.
- G.G. Giusteri, L. Lussardi and E. Fried, *Solution of the Kirchhoff-Plateau problem*, J. Nonlinear Sci. 27 (2017), no. 3, 1043-1063.
- L. Lussardi, S. Marini and M. Veneroni, *Stochastic homogenization of maximal monotone relations and applications*, Netw. Heterog. Media 13 (2018), no. 1, 27-45.
- G. Bevilacqua, L. Lussardi and A. Marzocchi, *Soap film spanning electrically repulsive elastic protein links*, Atti Accad. Peloritana Pericolanti Cl. Sci. Fis. Mat. Natur. 96 (2018), suppl. 3, A1, 13 pp.
- E. Fried and L. Lussardi, *Monotonicity formulae for smooth extremizers of integral functionals*, Rend. Lincei Mat. Appl. 30 (2019), no. 2, 365-377.
- G. Bevilacqua, L. Lussardi and A. Marzocchi, *Soap film spanning an elastic link*, Quart. Appl. Math. 77 (2019), no. 3, 507-523.
- L. Lussardi, *The Plateau problem in the Calculus of Variations*, Rendiconti Sem. Mat. Univ. Pol. Torino 77 (2019), no. 1, 45-82.
- K. Brazda, L. Lussardi and U. Stefanelli, *Existence of varifold minimizers for the multiphase Canham-Helfrich functional*, Calc. Var. Partial Differential Equations 59 (2020), no. 3, 26 pp.
- G. Bevilacqua, L. Lussardi and A. Marzocchi, *Dimensional reduction of the Kirchhoff-Plateau problem*, J. Elasticity 140 (2020), no. 1, 135-148.
- L. Lussardi, *The Canham-Helfrich model for the elasticity of biomembranes as a limit of mesoscopic energies*, Proceedings of the XXI International Conference on Geometry, Integrability and Quantization (Varna, June 3-8, 2019) (2020), 170–180.
- A. Chambolle, L. Lussardi and E. Villa, *Anisotropic tubular neighborhoods of sets*, to appear on Math. Z.
- M. Eleuteri, L. Lussardi and A. Torricelli, *Limits of non-local anisotropic perimeters*, preprint ArXiv:2008.13110 (2020).
- S. Don, L. Lussardi, A. Pinamonti and G. Treu, *Lipschitz minimizers for a class of integral functionals under the bounded slope condition*, submitted.

Research talks

- *Non-local approximation for free discontinuity problems with linear growth in the gradient*, XIV Convegno Nazionale di Calcolo delle Variazioni (Levico Terme, Italy), February 2004.
- *Free discontinuity functionals with linear growth and their approximation*, Workshop Trends in Mathematical Imaging and Surface Processing, Mathematisches Forschungsinstitut Oberwolfach (Germany), January 2007.
- *Convergence of non-local finite element energies for fracture mechanics*, XVII Convegno Nazionale di Calcolo delle Variazioni (Levico Terme, Italy), February 2007.
- *Solution of an optimal profile problem*, XVIII Congresso dell'Unione Matematica Italiana, Politecnico di Bari (Bari, Italy), September 2007.
- *Generalized coarea formula and applications*, XVIII Convegno Nazionale di Calcolo delle Variazioni (Levico Terme, Italy), February 2008.
- *Continuous limits for discret perimeters*, Istituto di Matematica Applicata e Tecnologie Informatiche "Enrico Magenes" (Pavia, Italy), April 2009.
- *Convergence of discrete models for image processing problems*, Hausdorff Center for Mathematics (Bonn, Germany) May 2009.
- *Discrete total variations and convergence results*, Workshop Problems in Calculus of Variations and Partial Differential Equations, Università di Trento (Trento, Italy), June 2009.
- *$\partial\bar{\partial}$-cohomology for non-compact manifolds*, Università Cattolica del Sacro Cuore (Brescia, Italy), December 2009.
- *Gamma-limits of non-local energies*, Technische Universität Dortmund (Dortmund, Germany), January 2010.
- *Variational models for image segmentation*, Meeting Eindhoven-Dortmund, Technische Universiteit Eindhoven (Eindhoven, Netherlands), March 2010.
- *Gamma-convergence results for non-local energies*, Carnegie Mellon University (Pittsburgh, USA), February 2011.
- *On the limits of non-local perimeters*, XIX Congresso dell'Unione Matematica Italiana, Università di Bologna (Bologna, Italy), September 2011.
- *Stampacchia-type inequality for a fourth order operator on Kähler manifolds and applications*, Università di Parma (Parma, Italy), November 2011.
- *On a variational model for the mechanics of cell membranes*, XXII Convegno Nazionale di Calcolo delle Variazioni (Levico Terme, Italy), February 2012.
- *On a 3D variational model for biomembranes*, LVIII Workshop Variational Analysis and Applications, Fondazione e Centro di Cultura Scientifica Ettore Majorana (Erice, Italy), May 2012.
- *A multiple scales model for biomembranes and variational limits*, Congresso della Società Italiana di Matematica Applicata e Industriale, Politecnico di Torino (Torino, Italy), June 2012.
- *Discrete perimeters and optimization methods for image processing*, Workshop on Optimization, Control Theory and Applications, Università di Verona (Verona, Italy), January 2013.
- *Quasi-static evolution for a model in strain-gradient plasticity*, Spring School on Rate-independent evolutions and hysteresis modelling, Università di Milano & Politecnico di Milano (Milano, Italy), May 2013.
- *On the anisotropic Minkowski content of a set*, Istituto di Matematica Applicata e Tecnologie Informatiche "Enrico Magenes" (Pavia, Italy), November 2013.
- *On the anisotropic Minkowski content of a set*, XXIV Convegno Nazionale di Calcolo delle Variazioni (Levico Terme, Italy), January 2014.
- *A variational model for elasticity of biomembranes*, Mechanics and Biology Workshop, Gran Sasso Science Institute (L'Aquila, Italy), May 2014.
- *On a variational model for the elasticity of cell membranes*, Università di Ferrara (Ferrara, Italy), December 2014.
- *On a variational model for the elasticity of cell membranes*, Università di Milano (Milano, Italy), January 2015.
- *On a variational model for the elasticity of cell membranes*, Università di Firenze (Firenze, Italy), March 2015.
- *On a variational model for the elasticity of biomembranes*, Westfälische Wilhelms Universität Münster (Münster, Germany), March 2015.
- *A partial Gamma-convergence result for a family of functionals depending on curvatures*, Università di Pisa (Pisa, Italy), March 2016.
- *A variational model for the shape of biomembranes*, Okinawa Institute of Science and Technology (Okinawa, Japan), March 2016.
- *On a variational model for the elasticity of biomembranes*, SIAM Conference on Mathematical Aspects of Materials Science (Philadelphia, USA), May 2016.
- *Minkowski anisotropic content*, Convegno scientifico GNAMPA (Montecatini Terme, Italy), June 2016.
- *A uniqueness result for a class of non-strictly convex variational problems*, Workshop on Calculus of Variations and Nonlinear PDEs, Università del Sannio (Benevento, Italy), November 2016.

- *A uniqueness result for a class of non-strictly convex variational problems*, Università di Padova (Padova, Italy), December 2016.
- *The Kirchhoff-Plateau problem*, XXVII Convegno Nazionale di Calcolo delle Variazioni (Levico Terme, Italy), February 2017.
- *The Kirchhoff-Plateau problem*, Workshop Viscoelasticity and Dissipative Dynamics of Rods and Membranes, Okinawa Institute of Science and Technology (Okinawa, Japan), March 2017.
- *A partial Gamma-convergence result for a family of functionals depending on curvatures*, Universität Wien (Wien, Austria), September 2017.
- *Uniqueness results for non-strictly convex variational problems*, Workshop Nonlinear Days in Turin, Politecnico di Torino (Torino, Italy), September 2017.
- *Stochastic homogenization via scale integration and applications*, Lomonosov Moscow State University (Moscow, Russia), October 2017.
- *Mathematical methods for solving PDEs*, Open seminar Advanced non-radiating architectures scattering tenuously and sustaining invisible anapoles, National University of Science and Technology MISiS (Moscow, Russia), November 2017.
- *The Kirchhoff-Plateau problem*, Okinawa Institute of Science and Technology (Okinawa, Japan), February 2018.
- *Mathematical methods for solving PDEs*, Open seminar Advanced non-radiating architectures scattering tenuously and sustaining invisible anapoles, Politecnico di Torino (Torino, Italy), April 2018.
- *A multiple scales model for biomembranes and variational limits*, Politecnico di Torino (Torino, Italy), June 2018.
- *Stochastic homogenization via scale integration and applications*, XIV International Workshop on Well-Posedness of Optimization Problems and Related Topics (Borovets, Bulgaria), August 2018.
- *Perimeters of sets and their approximation*, Università di Modena e Reggio Emilia (Modena, Italy), October 2018.
- *On the Kirchhoff-Plateau problem*, Università Cattolica del Sacro Cuore (Brescia, Italy), January 2019.
- *The Kirchhoff-Plateau problem*, Courant Institute of Mathematical Sciences (New York, USA), April 2019.
- *Modeling cell membranes with the Calculus of Variations*, The Annual Conference and Exhibition of the Polytechnic University in Tashkent (Tashkent, Uzbekistan), April 2019.
- *The Kirchhoff-Plateau problem*, Istituto di Matematica Applicata e Tecnologie Informatiche "Enrico Magenes" (Pavia, Italy), June 2019.
- *The Helfrich model for the elasticity of biomembranes as a limit of mesoscopic energies*, XXI Conference on Geometry, Integrability and Quantization (Varna, Bulgaria), June 2019.
- *The Helfrich model for the elasticity of biomembranes as a limit of mesoscopic energies*, IX International Congress on Industrial and Applied Mathematics (Valencia, Spain), July 2019.
- *On the Kirchhoff-Plateau problem*, Two days on CalcVar & PDEs, Università di Bologna (Bologna, Italy), November 2019.
- *Membrane shapes that minimize the multiphase Canham-Helfrich energy*, Università di Padova (Padova, Italy), January 2020.
- *Varifold minimizers of the multiphase Canham-Helfrich functional*, Workshop Geometric Measure Theory in Padova (Padova, Italy), January 2020.
- *Minimizers of the multiphase Canham-Helfrich functional*, Workshop Mathematical Models for Continuum Mechanics, Politecnico di Torino (Torino, Italy), January 2020.
- *Soap films spanning elastic boundaries*, Università di Pisa (Pisa, Italy), February 2020.
- *Minimizers of the multiphase Canham-Helfrich functional*, XVIII International Conference of Numerical Analysis and Applied Mathematics (Rhodes, Greece), September 2020.

Organization activity

- Co-organizer of the Workshop Problems in Calculus of Variations and Partial Differential Equations, Università di Trento (Trento, Italy), June 2009.
- Co-organizer of the Minisymposium Mathematical Models for Solid Mechanics and Soft Structures at the IX International Congress on Industrial and Applied Mathematics (Valencia, Spain), July 2019.

Memberships

- INdAM - Gruppo Nazionale per l'Analisi Matematica, la Probabilità e le loro Applicazioni, since 2008.

Funded research projects

- Project GNAMPA 2014 *Anisotropic perimeters and shape optimization*.

Memberships in research projects

- PRIN 2000 *Free boundary problems* coordinated by A. Visintin.
- PRIN 2002 *Free boundary problems in the applied sciences* coordinated by A. Visintin.
- PRIN 2008 *Optimal mass transport, geometric and functional inequalities and applications* coordinated by L. Ambrosio.
- Project GNAMPA 2010 *Variational problems in micromagnetism* coordinated by M. Eleuteri.
- PRIN 2011 *Calculus of Variations* coordinated by G. Dal Maso.
- Project GNAMPA 2016 *Analysis of inelastic processes in the solid mechanics and for cells membranes; fine properties of solutions* coordinated by C. Zanini.
- Progetto Premiale FOE 2014 *Strategic initiatives for the environment and security* coordinated by V. Vespri.
- Project for the Internationalization of Research Politecnico di Torino & Compagnia di San Paolo 2017 *Advanced non-radiating architectures scattering tenuously and sustaining invisible anapoles* coordinated by L. Matekovits.
- Project GNAMPA 2019 *Analysis and optimization of thin structures* coordinated by M. Morandotti.
- Project GNAMPA 2020 *Variational analysis of non-local models in the applied sciences* coordinated by M. Bonacini.

Review activity

- Reviewer for MathSciNet.
- Reviewer for Zentralblatt MATH.
- Referee for journals in the area of Calculus of Variations and Partial Differential Equations.

DIVULGATION ACTIVITY

Publications on divulgation of Mathematics

- L. Lussardi, *La matematica è difficile?* Matematicamente Mag. 1 (2007), 8-10.
- L. Lussardi, *Le superfici non orientabili*, Matematicamente Mag. 2 (2007), 19-22.
- L. Lussardi, *Metodi variazionali per il trattamento di immagini*, Matematicamente Mag. 2 (2007), 57-59.
- L. Lussardi, *Metodi infinitesimali nell'antichità, I parte: L'infinito negli antichi e il metodo di esaustione*, Matematicamente Mag. 4 (2007), 11-15.
- L. Lussardi, *Metodi infinitesimali nell'antichità, II parte: da Cavalieri alla prima derivata*, Matematicamente Mag. 5 (2008), 22-25.
- P. Bonicatto e L. Lussardi, *Sulle equazioni differenziali ordinarie a variabili separabili*, Matematicamente Mag. 7 (2008), 5-8.
- L. Francesca, M. Leoni e L. Lussardi, *Quando la logica va oltre la costruzione*, Matematicamente Mag. 12 (2010), 10-13.
- L. Lussardi, *Moltiplicare i numeri con la Geometria*, Matematicamente Mag. 13 (2010), 10-14.
- L. Lussardi, *Geometria iperbolica e Architettura*, Quaderno Seminario Matematico Brescia 25 (2011), 1-15.
- P. Bonicatto, M. Leoni e L. Lussardi, *Matematica tra le pieghe II*, Matematicamente Mag. 16 (2011), 5-13.
- L. Lussardi, *Coerenza, incompletezza e indecidibilità: una riflessione sui fondamenti della matematica*, Nuova Secondaria 3 (2012), 88-91.
- M. Degiovanni e L. Lussardi, *Sulla definizione di limite in Analisi Matematica*, Nuova Secondaria 8 (2014), 74-77.
- L. Lussardi, *Sommare le serie non convergenti: istruzioni per l'uso*, Matematicamente Mag. 23 (2014), 43-51.
- L. Lussardi, *Geometria e spazio fisico*, Nuova Secondaria 3 (2015), 42-44.
- L. Lussardi, *Gioco del Lotto e credenze popolari: cosa è vero? La parola ai matematici*, Nuova Secondaria 7 (2016), 70-75.
- L. Lussardi, *Il linguaggio della relatività: le geometrie non euclidee*, in Einstein 1916-2016 - Atti del ciclo di conferenze sulla teoria della relatività generale (Università di Brescia, Aprile 2016) (2018), 49-70.

Poster presentations and talks on the divulgation of Mathematics

- *Ruler and compass? No, origami*, poster presentation at MeetMeTonight, Università Cattolica del Sacro Cuore (Brescia, Italy), September 2014 and September 2015.
- *History of Mathematical Analysis*, series of conferences at Natural Science Museum of Brescia (Brescia, Italy), May 2015.
- *Geometry and physical space*, conference at Natural Science Museum of Brescia (Brescia, Italy), October 2015.
- *The language of relativity: non-euclidean geometry*, conference at Workshop Einstein 1916-2016, Università di Brescia (Brescia, Italy), April 2016.

- *The parsimonious of the universe and minimal surfaces*, poster presentation at MeetMeTonight, Università Cattolica del Sacro Cuore (Brescia, Italy), September 2016.
- *Mathematics of '900*, series of conferences at Natural Science Museum of Brescia (Brescia, Italy), October 2016.

Online divulgation activity

- Scientific responsible of the forum of *Matematicamente.it*.

January 8, 2021