

# CURRICULUM VITAE OF ROBERTO PARONI



## ADDRESS

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## BIOGRAPHICAL INFORMATION

Birth Date: July 28, 1968  
Citizenship: Italian

## CURRENT ACADEMIC POSITION

- Professor, Università di Pisa, since November 1, 2017.

## PAST PROFESSIONAL APPOINTMENTS

- Professor, Università di Sassari, from October 2005 to October 2017.
- Associate professor, Università di Sassari, from November 2001 to September 2005.
- Assistant professor, Università di Udine, from July 2000 to October 2001.
- EU Postdoctoral associate, Mathematical Institute, University of Oxford, from September 1999 to September 2000.
- Postdoctoral associate, Center for Nonlinear Analysis, Department of Mathematical Sciences, Carnegie Mellon University, from September 1998 to September 1999.
- Postdoctoral associate, Department of Mathematics, University of Kentucky, May–August 1998.

## EDUCATION

- Ph.D. in Mathematics, University of Kentucky, May 1998.
- M.A. in Mathematics, University of Kentucky, May 1995.
- Degree in Civil Engineering, University of Udine, July 1993.

## VISITING POSITIONS

- University of Crete (Heraklion), June 2024
- Ecole Polytechnique (Paris), March 2017
- Aix-Marseille Université, March 2015
- University of Kentucky, January, April 2012, May 2013, July 2014
- Cornell University, March 2012
- Université Pierre et Marie Curie (Paris VI), June 2011
- University of Kentucky, January-February 2011
- University of Kentucky, March 2010
- University of Montpellier, June 2009

- University of Kentucky, January–May 2004
- University of Kentucky, April–July 2002
- University of Oxford, April–August 2001
- Université Montpellier II, March 2001
- University of Oxford, February 2001

#### EDITORIAL POSITIONS

- Associate Editor in Mechanics of Materials, *Frontiers*, since June 2022
- Review Editor in Mechanics of Materials, *Frontiers*, since December 2014
- Editorial Board, *Mathematics and Mechanics of Solids*, since July 2013
- Editorial Board, *Journal of Elasticity, The Physical and Mathematical Science of Solids*, since July 2008

#### REFEREE

I have been a referee for:

Journal of Elasticity - Mathematics and Mechanics of Solids - Continuum Mechanics and Thermodynamics - Zeitschrift für angewandte Mathematik und Physik - Archive for Rational Mechanics and Analysis - Meccanica - SIAM Journal of Mathematical Analysis - International Journal of Solids and Structures - Journal of Sound and Vibrations - The Journal of the Acoustical Society of America - Wave Motion - Journal of Convex Analysis - Journal of the Mechanics and Physics of Solids - Mathematics and Mechanics of Complex Systems - Annali dell'università di Ferrara - The IMA Journal of Applied Mathematics - Journal of Nonlinear Science - The Journal of Geometric Analysis - Mechanics of Materials - ESAIM: Control, Optimisation and Calculus of Variations - Journal of Differential Equations - International Journal of Non-Linear Mechanics - The IMA Journal of Applied Mathematics - Proceedings of the Royal Society A - Several proceedings.

#### MEMBERSHIP IN PROFESSIONAL SOCIETIES

- SNP - Society for Natural Philosophy, Chairman 2022-2024
- SNP - Society for Natural Philosophy (Member of the Program Committee 2017-2020, Governing Member 2017-2020, Secretary 2013-2015, Member of the Program Committee 2010-2013.)
- GNFM - Gruppo Nazionale per la Fisica Matematica
- ISIMM - International Society for the Interaction between Mechanics and Mathematics

#### POST-DOCS

- Lior Falach, June 2014-July 2015, General Motors Advanced technical center Israel.

#### GRANTS

- MIUR Prin 2017. PI of the unit of Pisa. Title of the program “Integrated mechanobiology approaches for a precise medicine in cancer treatment”, (3 years grant).
- Progetti di Ricerca di Ateneo (PRA) 2018-2019. PI of the project. Title of the program “Modellazione multi-scala in ingegneria strutturale”, (36 months grant).
- Progetti Ricerca di Base Regione Sardegna 2010. PI of the project. Title of the program “Modellazione Matematica nella Meccanica dei Materiali”, (36 months grant).
- Progetti Ricerca di Base Regione Sardegna 2009. PI of the unit of Sassari. Title of the program “Modellazione Multiscala della Meccanica dei Materiali Compositi”, (18 months grant).

- MIUR Prin 2008. PI of the unit of Sassari. Title of the program “Advanced models for composite thin structures”, (2 years grant).
- MIUR Prin 2005. PI of the unit of Sassari. Title of the program “Mathematical modelling of complex structures and materials”, (2 years grant).
- MIUR Cofin 2003. PI of the unit of Sassari. Title of the program “Constitutive modeling of polycrystalline aggregates and of martensitic materials”, (2 years grant).

## BOOKS

- R. Paroni, “Scienza delle costruzioni. Elementi di teoria dell’elasticità lineare”, *Springer*, 2022.
- Editor of “Classical and advanced theories of thin structures: mechanical and mathematical aspects”, *CISM courses and lectures n. 503*, 2008, (with A. Morassi).

## PUBLICATIONS

91. R. Paroni, M. Picchi-Scardaoni, From elastic shallow shells to beams with elastic hinges by  $\Gamma$ -convergence, *Zeitschrift für angewandte Mathematik und Physik* 75, 135, 2024
90. T.J. Healey, R. Paroni, P. Rosakis, Sharp-interface limits for brittle fracture via the inverse-deformation formulation, *Journal of the Mechanics and Physics of Solids* 190, 105717, 2024
89. R. Paroni, B. Seguin, A beam that can only bend on the Cantor set, *Mathematical Methods in the Applied Sciences* 1–10, DOI 10.1002/mma.10173, 2024
88. M. Coppedè, R. Paroni, M. Picchi-Scardaoni, Numerical investigation of the asymptotic behavior of tape springs, *Journal of Theoretical and Applied Mechanics* 62, 535–545, 2024.
87. F.A. dos Santos, A. Favata, A. Micheletti, R. Paroni, M. Picchi-Scardaoni, Programming quadric metasurfaces via infinitesimal origami maps of monohedral hexagonal tessellations – Part II, *Proceedings of the Royal Society A* 480, 20230449, 2024
86. F.A. dos Santos, A. Favata, A. Micheletti, R. Paroni, M. Picchi-Scardaoni, Programming quadric metasurfaces via infinitesimal origami maps of monohedral hexagonal tessellations – Part I, *Proceedings of the Royal Society A* 480, 20230430, 2024
85. A. DiCarlo, R. Paroni, R. Rizzoni, A variational derivation of Stoney-like formulas for self-stressed bilayered plates, *Journal of Elasticity* 155, 637–669, 2024
84. R. Alessi, M. Brunetti, R. Paroni, M. Picchi Scardaoni, A continuous pleated birod for converting contractions into twisting through instability, *Journal of the Mechanics and Physics of Solids* 181, 105451, 2023.
83. F.A. dos Santos, A. Favata, A. Micheletti, R. Paroni, M. Picchi-Scardaoni, Tiled plates with one degree of freedom, in *Shell and Spatial Structures*, Springer, 293–698, 2023.
82. R. Paroni, P. Podio-Guidugli, B. Seguin, On a notion of nonlocal curvature tensor, *Journal of Elasticity* 154, 61–79, 2023.
81. R. Alessi, L. Aliotta, M. Brunetti, M. Ciotti, R. Paroni, M. Picchi Scardaoni, Instability and softening in a continuous bi-rod, *Materials & Design* 224, 111387, 2022.
80. M. Picchi-Scardaoni, R. Paroni, Linear models of a stiffened plate via  $\Gamma$ -convergence, *Journal of Elasticity* 151, 237–272, 2022.
79. L. Freddi, P. Hornung, M.G. Mora, R. Paroni, Stability of boundary conditions for the Sadowsky functional, *Journal of Nonlinear Science* 32, 72, 2022.

78. A. Favata, R. Paroni, F. Recrosi, G. Tomassetti, Elastic properties of healthy and cancerous epithelial tissues from indirect measurements, *Mechanics Research Communications* 124, 103952, 2022.
77. R. Barsotti, R. Paroni, G. Tomassetti, On the helicoid to spiral transition in ribbons subjected to combined traction and twist, *International Journal of Solids and Structures* 250, 111692, 2022.
76. A. Favata, R. Paroni, F. Recrosi, G. Tomassetti, Competition between epithelial tissue elasticity and surface tension in cancer morphogenesis, *International Journal of Engineering Science* 176, 103677, 2022.
75. F. A. dos Santos, A. Favata, A. Micheletti, R. Paroni, Design of auxetic plates with only one degree of freedom, *Extreme Mechanics Letters* 42, 101091, 2021.
74. C. Davini, R. Paroni, A variational property of the von Kármán plate problem, *Mathematics and Mechanics of Solids* 26, 166–178, 2021.
73. R. Barsotti, R. Paroni, G. Tomassetti, On the straight-helicoid to spiral-ribbon transition in thin elastic ribbons, in *Lecture Notes in Mechanical Engineering* 967–976, 2020.
72. I. Fonseca, A. Hagerty, R. Paroni, Second order structured deformations in the space of functions of bounded Hessian, *Journal of Nonlinear Science* 29, 2699–2734, 2019.
71. C. Davini, A. Favata, R. Paroni, An atomistic-based Föppl–von Kármán model for graphene, *International Journal of Non-Linear Mechanics* 116, 281–288, 2019.
70. R. Paroni, G. Tomassetti, Macroscopic and microscopic behavior of narrow elastic ribbons, *Journal of Elasticity* 135, 409–433, 2019.
69. F. Murat, R. Paroni, Plate theory as the variational limit of the complementary energy functionals of inhomogeneous anisotropic linearly elastic bodies, *Mathematics and Mechanics of Solids* 23, 1119–1139, 2018.
68. C. Davini, A. Favata, R. Paroni, A REBO-potential-based model for graphene bending by  $\Gamma$ -convergence, *Arch. Rational Mech. Anal.* 229, 1153–1195, 2018.
67. L. Freddi, P. Hornung, M.G. Mora, R. Paroni, One-dimensional von Kármán models for elastic ribbons, *Meccanica* 53, 659–670, 2018.
66. R. Paroni, G. Tomassetti, Linear models for thin plates of polymer gels, *Mathematics and Mechanics of Solids* 23, 835–862, 2018.
65. R. Paroni, P. Podio-Guidugli, B. Seguin, On the nonlocal curvatures of surfaces with or without boundary, *Communications on Pure and Applied Analysis* 17, 709–727, 2018.
64. C. Davini, A. Favata, A. Micheletti, R. Paroni, A 2D microstructure with auxetic out-of-plane behavior and non-auxetic in-plane behavior, *Smart Materials and Structures* 26, 125007, 2017, (11 pages).
63. C. Davini, A. Favata, R. Paroni, A new material property of graphene: the bending Poisson coefficient, *EPL (Europhysics Letters)* 118, 26001, 2017, (6 pages).
62. C. Davini, A. Favata, R. Paroni, The Gaussian stiffness of graphene deduced from a continuum model based on molecular dynamics potentials, *Journal of the Mechanics and Physics of Solids* 104, 96–114, 2017.
61. L. Falach, R. Paroni, P. Podio-Guidugli, A justification of the Timoshenko beam model through  $\Gamma$ -convergence, *Analysis and Applications* 15, 261–277, 2017.
60. C. Davini, L. Freddi, R. Paroni, Composite thin-walled beams: from asymptotic analysis to its application to real cases, in *Variational Analysis and Aerospace Engineering. Mathematical Challenges for the Aerospace of the Future*, Springer, 145–168, 2016.

59. L. Freddi, P. Hornung, M.G. Mora, R. Paroni, A variational model for anisotropic and naturally twisted ribbons, *SIAM Journal on Mathematical Analysis* 48, 3883–3906, 2016.
58. R. Paroni, A. Sili, Non-local effects by homogenization or 3D-1D dimension reduction in elastic materials reinforced by stiff fibers, *Journal of Differential Equations* 260, 2026–2059, 2016.
57. L. Freddi, P. Hornung, M.G. Mora, R. Paroni, A corrected Sadowsky functional for inextensible elastic ribbons, *Journal of Elasticity* 123, 125–136, 2016.
56. D. Owen, R. Paroni, Optimal flux densities for linear mappings and the multiscale geometry of structured deformations, *Arch. Rational Mech. Anal.* 218, 1633–1652, 2015.
55. R. Paroni, G. Tomassetti, Buckling of residually-stressed plates: an asymptotic approach, *Mathematics and Mechanics of Solids* 20, 982–997, 2015.
54. R. Paroni, P. Podio-Guidugli, On variational dimension reduction in structure mechanics, *Journal of Elasticity* 118, 1–13, 2015.
53. C. Davini, L. Freddi, R. Paroni, Linear models for composite thin-walled beams by  $\Gamma$ -convergence. Part II: closed cross-sections, *SIAM Journal on Mathematical Analysis* 46, 3332–3360, 2014.
52. C. Davini, L. Freddi, R. Paroni, Linear models for composite thin-walled beams by  $\Gamma$ -convergence. Part I: open cross-sections, *SIAM Journal on Mathematical Analysis* 46, 3296–3331, 2014.
51. R. Paroni, G. Tomassetti, On Korn's constant for thin cylindrical domains, *Mathematics and Mechanics of Solids* 19, 317–332, 2014.
50. M. Jabbour, C.-S. Man, R. Paroni, Spherulitic crystallization in binary thin films under solvent-vapor annealing. I: A sharp-interface theory, *Journal of Chemical Physics* 139, 144704, 2013, (18 pages).
49. L. Della Longa, L. Freddi, A. Londero, R. Paroni, Residually stressed beams, *Mathematics and Mechanics of Solids* 18, 876–895, 2013.
48. L. Freddi, M.G. Mora, R. Paroni, Nonlinear thin-walled beams with a rectangular cross-section - Part II, *Math. Models Methods Appl. Sci.* 23, 743–775, 2013.
47. S. De Faveri, L. Freddi, R. Paroni, No-tension bodies: a reinforcement problem, *European Journal of Mechanics - A/Solids* 39, 163–169, 2013.
46. R. Paroni, G. Tomassetti, Asymptotically exact Korn's constant for thin cylindrical domains, *Comptes Rendus Mathématique* 350, 749–752, 2012.
45. R. Paroni, An existence theorem for inextensible nets with slack, *Mathematics and Mechanics of Solids* 17, 460–472, 2012.
44. L. Freddi, M.G. Mora, R. Paroni, Nonlinear thin-walled beams with a rectangular cross-section - Part I, *Math. Models Methods Appl. Sci.* 22, 1150016 (34 pp), 2012.
43. A. Di Carlo, R. Paroni, R. Rizzoni, On thin coated plates with residual stress for the implementation of a crystalline undulator, *Atti XX convegno AIMETA, 2011*.
42. L. Freddi, R. Paroni, T. Roubíček, C. Zanini, Quasistatic delamination models for Kirchhoff-Love plates, *ZAMM*, 91, 845–865, 2011.
41. R. Paroni, G. Tomassetti, From non-linear elasticity to linear elasticity with initial stress via  $\Gamma$ -convergence, *Continuum mechanics and thermodynamics*, 23, 347–361, 2011.
40. L. Freddi, F. Murat, R. Paroni, Saint-Venant's theory for beams with multi-connected cross-section: justification and error estimate, *Asymptotic analysis*, 70, 177–197, 2010.

39. L. Freddi, R. Paroni, C. Zanini, Dimension reduction of a crack evolution problem in a linearly elastic plate, *Asymptotic analysis*, 70, 101–123, 2010.
38. R. Paroni, G. Tomassetti, A variational justification of linear elasticity with residual stress, *Journal of Elasticity*, 97, 189–206, 2009.
37. L. Freddi, A. Morassi, R. Paroni, On the variational derivation of the kinematics for thin-walled closed section beams, in *IUTAM Symposium on Relation on shell, plate, beam and 3D models*, Springer, 101–110, 2008.
36. L. Freddi, R. Paroni, Variational dimension reduction in nonlinear elasticity: a Young measure approach, in *IUTAM Symposium on Relation on shell, plate, beam and 3D models*, Springer, 111–122, 2008.
35. R. Paroni, Constitutive equations and variational elasticity, in *Classical and advanced theories of thin structures: mechanical and mathematical aspects*, Edited by A. Morassi and R. Paroni, CISM courses and lectures n. 503, Springer, 35–60, 2008.
34. L. Freddi, F. Murat, R. Paroni, Anisotropic inhomogeneous rectangular thin-walled beams, *SIAM Journal on Mathematical Analysis*, 40, 1923–1951, 2008.
33. C. Davini, R. Paroni, E. Puntel, An asymptotic approach to the torsion problem in thin walled beams, *Journal of Elasticity*, 93, 149–176, 2008.
32. C. Davini, R. Paroni, External approximation of first order variational problems via  $W^{-1,p}$  estimates, *ESAIM: COCV*, 14, 802–824, 2008.
31. C. Davini, R. Paroni, E. Puntel, An asymptotic approach to the torsion problem in thin rectangular domains, *Meccanica*, 43, 429–435, 2008.
30. L. Freddi, A. Londero, R. Paroni, A simple variational derivation of slender rod's theory, *Applied and Industrial Mathematics in Italy II, Series in Mathematics for Applied Sciences. World Scientific*, 75, 363–374, 2007.
29. R. Paroni, P. Podio-Guidugli, G. Tomassetti, A justification of the Reissner-Mindlin plate theory through variational convergence, *Analysis and Applications*, 5, 165–182, 2007.
28. C. Davini, R. Paroni and E. Puntel, An asymptotic approach to the torsion problem in simply connected thin walled beams. *Atti XVIII convegno AIMETA, 2007*.
27. L. Deseri, R. Paroni, M. Piccioni and G. Zurlo, On the free energy of liposomes. *Atti XVIII convegno AIMETA, 2007*.
26. L. Freddi, A. Morassi, R. Paroni, Thin-walled beams: a derivation of Vlasov theory via  $\Gamma$ -convergence, *Journal of Elasticity*, 86, 263–296, 2007.
25. R. Paroni, P. Podio-Guidugli, G. Tomassetti, The Reissner-Mindlin plate theory via  $\Gamma$ -convergence, *C. R. Acad. Sci. Paris, Ser. I*, 343, 437–440, 2006.
24. C.-S. Man, R. Paroni, Y. Xiang, E. Kenik, On the geometric autocorrelation function of polycrystalline materials, *J. Comput. Appl. Math.* 190, 200–210, 2006.
23. R. Paroni, Theory of linearly elastic residually stressed plates, *Mathematics and mechanics of solids* 11, 137–159, 2006.
22. R. Paroni, The equations of motion of a plate with residual stress, *Meccanica* 41, 1–21, 2006.
21. L. Freddi, A. Morassi, R. Paroni, Thin-walled beams: the case of the rectangular cross-section, *Journal of Elasticity* 76, 45–66, 2005.
20. I. Fonseca, G. Leoni, R. Paroni, On Hessian Matrices in the Space  $BH$ , *Commun. Contemp. Math.* 7, 401–420, 2005.

19. R. Paroni, Second-order structured deformations: Approximation theorems and energetics, in *Multiscale Modeling in Continuum Mechanics and Structured Deformations*, Edited by G. Del Piero and D. Owen, CISM courses and lectures n. 447, 177–202, 2004.
18. L. Freddi, R. Paroni, 3D-1D Young measure theory of an elastic string, *Asymptotic analysis* 39, 61–89, 2004.
17. L. Freddi, R. Paroni, The energy density of thin films via dimension reduction, *Interfaces and free boundaries* 6, 439–459, 2004.
16. S. Pagano and R. Paroni, Constrained bounds on texture coefficients. *Atti XVI convegno AIMETA, 2003*.
15. L. Deseri, C.-S. Man and R. Paroni, Texture and plasticity of polycrystals: a new micromechanical approach. *Atti XVI convegno AIMETA, 2003*.
14. L. Freddi and R. Paroni, 3D-2D asymptotics for thin films made of a phase transforming material. *Atti XVI convegno AIMETA, 2003*.
13. C. Davini, R. Paroni, Generalized Hessian and external approximations in variational problems of second order, *Journal of Elasticity* 70, 149–174, 2003.
12. R. Paroni, From discrete to continuum problems: a Young measure approach, *Z. angew. Math. Phys.* 54, 328–348, 2003.
11. S. Pagano, R. Paroni, A simple model for phase transitions: from the discrete to the continuum problem, *Quart. Appl. Math.* 61, 89–109, 2003.
10. I. Fonseca, G. Leoni, R. Paroni, On lower semicontinuity in  $BH^p$  and 2–quasiconvexification, *Calc. Var. Partial Differential Equations* 17, 283–309, 2003.
9. I. Fonseca, G. Leoni, J. Malý, R. Paroni, A note on Meyers’ theorem in  $W^{k,1}$ , *Trans. Amer. Math. Soc.* 354, 3723–3741, 2002.
8. R. Paroni, Phase transitions in solids: from discrete to continuum. *Atti XV convegno AIMETA, 2001*.
7. D. Owen, R. Paroni, Second order structured deformations, *Arch. Rational Mech. Anal.* 155, 215–235, 2000.
6. R. Paroni, Optimal bounds on texture coefficients, *Journal of Elasticity* 60, 19–34, 2000.
5. R. Paroni, C.-S. Man, Two micromechanical models in acoustoelasticity: a comparative study, *Journal of Elasticity* 59, 145–173, 2000.
4. R. Paroni, Homogenization of polycrystalline aggregates, *Arch. Rational Mech. Anal.* 151, 311–337, 2000.
3. R. Paroni, C.-S. Man, Constitutive equations of elastic polycrystalline materials, *Arch. Rational Mech. Anal.* 150, 153–177, 1999.
2. C.-S. Man and R. Paroni, Explicit formulae showing the effects of texture on acoustoelastic coefficients, in *Review of Progress in QNDE, Vol. 16*, D.O. Thompson and D.E. Chimenti (eds.) Plenum, New York, 1683–1690, 1997.
1. C.-S. Man, R. Paroni, On the separation of stress-induced and texture-induced birefringence in acoustoelasticity, *Journal of Elasticity* 45, 91–116, 1996.

## MEETINGS ORGANIZATION

- Conference “Continuum Mechanics Dialogues”, Udine, December 4–5, 2023. Organizer.
- Conference “Mechanics and Analysis”, 56th Meeting of the Society for Natural Philosophy, Pisa, September 21–23, 2022. Organizer.

- “7th International Conference on Material Modeling”, Cape Town (South Africa), 29 November–2 December, 2022. Member of the scientific committee.
- “6th International Conference on Material Modeling”, Lund (Sweden), June 26–28, 2019. Member of the scientific committee.
- “AIMETA 2017 - XXIII Congresso”, Salerno, September 4–7, 2017. Member of the scientific committee.
- “5th International Conference on Material Modeling”, Roma, June 14–16, 2017. Member of the scientific committee.
- “4th International Conference on Material Modelling”, Berkeley, May 27–29, 2015. Member of the scientific committee.
- Conference “Variational Modeling in Solid Mechanics”, Udine, September 22–24, 2014. Organized with R. Toader.
- “3rd International Conference on Material Modelling”, Warsaw, September 8–11, 2013. Member of the scientific committee.
- Conference “New materials and new problems in continuum mechanics”, 50th Meeting of the Society for Natural Philosophy, Udine, October 22–24, 2012. Member of the scientific and organizing committees.
- Conference “Chinese-Italian Bilateral Meeting on Mechanics”, Hong Kong, August 28–29, 2012. Organized with H.-H. Dai.
- Minisymposium “Mathematical contributions to the study of thin structures” at XX convegno AIMETA, Bologna, September 12-15, 2011. Organized with E. Zappale.
- “2nd International Conference on Material Modelling”, Paris, August 31 – September 2, 2011. Member of the scientific committee.
- “V Riunione del Gruppo Materiali AIMETA”, Udine, February 23–26, 2011. Organized with A. Morassi and E. Puntel.
- “1st International Conference on Material Modelling”, Dortmund, September 15–17, 2009. Member of the scientific committee.
- CISM course “Classical and advanced theories of thin structures: mechanical and mathematical aspects”, CISM course, 2006. Organized with A. Morassi.
- Conference “Theories of Microstructures and Defects”, Meeting of the Society for Natural Philosophy, Bari October 8–10, 2005. Member of the scientific committee. Organized with C. Davini, M. Degiovanni, L. Freddi, M. Solci.
- Conference “Mathematical Modeling in Continuum Mechanics and Structures”, Alghero, May 10–14, 2005.
- TMR Phase Transitions in Crystalline Solids, Alghero Meeting 2004, Porto Conte Ricerche, Tramariglio (SS), January 9–10, 2004. Member of the organizing committee.

#### A FEW CONFERENCE PRESENTATIONS

- June 2024, “A one dimensional model for a Möbius band obtained via  $\Gamma$ -convergence” Department of Mathematics and Applied Mathematics, University of Crete, Greece
- June 2022, “Microscopically piece-wise rigid plates inspired by graphene” at Variational challenges in materials sciences & imaging, Wien, Austria
- February 2021, “A non-linear model for inextensible elastic ribbons.” at the webinar “Asymptotics, Operators, and Functionals”, University of Bath, England
- November 2019, “From graphene to microscopically piece-wise rigid plates” at RAM3 - Recent Advances in Mechanics and Mathematics of Materials, Rome, Italy
- September 2019, “Geometry and mechanics of narrow ribbons from a three-dimensional prospective” at XXIV Congresso AIMETA 2019 , Rome, Italy

- May 2019, “The energy of a Möbius band” at Analysis, Simulation, and Modeling of Elastic Curves 2019, Freiburg, Germany
- September 2018, “A REBO-Potential-Based Model for Graphene Bending by  $\Gamma$ -Convergence” at Workshop on Calculus of Variations and Applications, Zagreb, Croatia
- September 2017, “A variational model for anisotropic and naturally twisted ribbons” at XXIII Congresso AIMETA 2017, Salerno, Italy
- January 2016, “The energy of a Möbius band” at MM16 PG75 Physics and Mathematics of Materials: current insights, L’Aquila, Italy
- January 2016, “The energy of a Möbius band” at 2016 Joint Mathematics Meetings, Seattle, USA
- May 2015, “From 3D nonlinear elasticity to 1D linear/quasilinear elastic models for thin-walled beams” at 4th International Conference on Material Modelling, Berkeley, USA
- April 2014, “Asymptotic theories for thin-walled beams” at Workshop on Material Modeling, San Carlos, Brasil
- March 2014, “Linear models for composite thin-walled beams by Gamma-convergence” at PACAM XIV, Santiago, Chile
- July 2013, “Asymptotic theories for thin-walled beams” at SES2013, Providence, USA
- May 2013, “Modeling of thin coated plates with mismatch deformation” at PACAM XIII, Houston, USA
- August 2012, “Nonlinear Thin-Walled Beams: Derivation of a Hierarchy of One-Dimensional Models” at Chinese-Italian Bilateral Meeting on Mechanics, Hong Kong, China
- August 2012, “Modeling of thin coated plates with mismatch deformation” at ICTAM2012, Beijing, China
- August 2012, “A Variational Justification of Linear Elasticity with Residual Stress” at “Seminar of Brazilian and Italian Professors”, Tongji University, Shanghai, China
- June 2011, “A Variational Justification of Linear Elasticity with Residual Stress”, Université Pierre et Marie Curie (Paris VI), France
- September 2010, “On certain widespread ideas for dimension reduction in structure mechanics” at Second workshop on Thin Structures, Naples, Italy
- May 2010, “The energy density of martensitic thin-structures via dimension reduction” at SIAM conference on Mathematical Aspects of Materials Science, Philadelphia, USA
- March 2010, “A Variational Justification of Linear Elasticity with Residual Stress” at 1057<sup>th</sup> AMS meeting, Lexington, USA
- January 2010, “Dimension reduction techniques: ideas and applications” at SNP - PACAM XI meeting, Foz do Iguacu, Brazil
- July 2008, plenary lecture “From 3D nonlinear elasticity to 1D linear/quasilinear elastic models for thin-walled beams” at “Mathematical modelling in Structured Media and Applications, a meeting dedicated to Professor David R. Owen on his 65th birthday, Termoli (CB)
- January 2008, “A probabilistic model for plasticity of single crystals with macroscopic non-crystallographic slips”, International Symposium on Plasticity, Kona, Hawaii
- Ottobre 2007, “Modelli variazionali per travi in parete sottile”, Assemblea Scientifica G.N.F.M., Montecatini
- April 2007, “Thin walled elastic beams: a rigorous justification of Vlasov theory”, IUTAM Symposium on Relation of Shell, Plate, Beam and 3D Models, 2007, Tbilisi, Georgia
- Ottobre 2005, “Error estimate of first order variational problems in spaces of piece-wise constant functions” at meeting “Theories of Microstructures and Defects” of the Society for Natural Philosophy, Bari

- September 2005, “Vlasov’s thin-walled beam theory: a variational approach” at “Workshop on thin structures”, Napoli
- September 2004, “On the microstructure of polycrystalline aggregates”, SIMAI 2004, Venezia
- September 2003, “Energy density of a martensitic thin film via dimensional reduction”, SNP Meeting/IMA PI Conference: Multiscale Effects in Material Microstructures and Defects, University of Kentucky Lexington, KY
- September 2003, “3D-2D asymptotics for thin films made of a phase transforming material”, XVI convegno AIMETA, Ferrara
- Febbraio 2003, “Transizioni di fase e cambio di dimensione”, Assembla Scientifica G.N.F.M., Montecatini
- June 2002. “Theory of linearly elastic residually stressed plates”, at Symposium on Recent Advances and New Directions in Mechanics, Continuum Thermodynamics, and Kinetic Theory. In Memory of Clifford A. Truesdell III. Fourteenth U.S. National Congress of Theoretical and Applied Mechanics at Virginia Polytechnic Institute and State University in Blacksburg, Virginia
- July 2001. “From discrete to continuum: a Young measure approach” at Continuum Mechanics & Thermodynamics, International conference in Potsdam
- April 2000. “A simple model for phase transitions: from discrete to continuum” at TMR Network Phase Transitions in Crystals Leipzig 2000 meeting, Max-Planck Institute, Leipzig
- September 1999. “Constitutive equations of polycrystalline materials” at TMR Network Phase Transitions in Crystals Annual Meeting, Isaac Newton Institute, Cambridge
- June 1999. “Micromechanical models in acoustoelasticity: a comparative study” at the Symposium on Advances in the Continuum Mechanics and Thermodynamics of Material Behavior. ASME Joint Applied Mechanics and Materials Conference at Virginia Polytechnic Institute and State University in Blacksburg, Virginia
- June–July 1997. “Constitutive equations of polycrystalline materials” at McNU ’97, The 1997 joint American Society of Mechanical Engineers (ASME), American Society of Civil Engineers (ASCE), Society of Engineering Science (SES), Summer Meeting, Northwestern University, Evanston, Illinois, U.S.A

## TUTORING

### BACHELOR DEGREE

- Advisor of Andrea Talamonti. Thesis: “Anisotropia elastica bidimensionale: risoluzione del problema elastico con l’ausilio del formalismo polare”. Università di Pisa, 2024. Co-advisor: Marco Picchi Scardaoni
- Advisor of Gabriele Paiardini. Thesis: “Level set method for structural optimization”. Università di Pisa, 2024. Co-advisor: Marco Picchi Scardaoni
- Advisor of Leonardo Svizzero. Thesis: “Dall’elasticità tridimensionale a elementi finiti per travi”. Università di Pisa, 2023. Co-advisor: Marco Picchi Scardaoni
- Advisor of Rui Rodrigues Oliveira dos Santos. Thesis: “Generazione di topologie ottimali nella progettazione strutturale utilizzando il metodo dell’omogeneizzazione”. Università di Pisa, 2023.
- Advisor of Alessandra Attorri. Thesis: “Analisi Aeroelastica”. Università di Pisa, 2023.
- Advisor of Federico Calandra. Thesis: “L’omogeneizzazione nella teoria dell’elasticità lineare”. Università di Pisa, 2020.
- Co-advisor of Giuseppe Trogu. Thesis: “Dalla bonifica ai nuovi scenari della Nurra: le officine ex ETFAS”. Università di Sassari, 2016. Advisor: A. Monsù Scolaro.

- Co-advisor of Matteo Della Rossa. Thesis: “Analisi in piccole deformazioni di continui elastici unidimensionali”. Università di Udine, 2015. Advisor: L. Freddi.
- Co-advisor of Tanja Erjavec. Thesis: “Minimi locali in un problema di transizione di fase”. Università di Udine, 2013. Advisor: L. Freddi.
- Co-advisor of Martina Virginia Rovera Rovera. Thesis: “Interazione ghiaccio-struttura: il caso del Confederation Bridge”. Università di Udine, 2006. Advisor: C. Davini.

#### MASTER’S DEGREE

- Advisor of Michele Coppedè. Thesis: “Modello di trave in parete sottile con sezione curva e deformabile”. Università di Pisa, 2023. Co-advisor: M. Picchi Scardaoni.
- Co-advisor of Giorgia De Monte. Thesis: “Dal pantografo al continuo: modelli di travi via  $\Gamma$ -convergenza”. Università di Udine, 2015. Advisor: L. Freddi.
- Co-advisor of Alberto Palese. Thesis: “Separazione di fase in miscele ternarie”. Università di Udine, 2014. Advisor: L. Freddi.
- Advisor of Andrea Andretta. Thesis: “Determinante jacobiano, grado topologico e applicazioni a problemi di cavitazione in elasticità non lineare”, Università di Udine, 2011. Advisor with: L. Freddi.
- Advisor of Sara De Faveri. Thesis: “Tensioni come misure singolari in sistemi continui non resistenti a trazione”, Università di Udine, 2010. Advisor with: L. Freddi.
- Co-advisor of Alessandro Londero. Thesis: “Problemi di riduzione dimensionale variazionale in elasticità lineare”. Università di Udine, 2006. Advisor: L. Freddi.
- Co-advisor of Luca Della Longa. Thesis: “Propagazione di onde di Rayleigh in mezzi elastici”. Università di Udine, 2006. Advisor: A. Morassi.

#### DOCTORAL DEGREE

- Advisor of Alessandro Londero. Thesis: “Elastic bodies with residual stress: variational models by  $\Gamma$ -convergence”, Università di Udine, 2011. Advisor with: L. Freddi.
- Advisor of Giuseppe Zurlo. Thesis: “Material and geometric phase transitions in biological membranes”. XVIII ciclo, Ingegneria delle Strutture, Università di Pisa, 2003. Advisor with: L. Deseri and S. Marzano.

#### UNIVERSITY TEACHING

- Ottimizzazione strutturale, Università di Pisa, from a.a. 2022/23 to today.
- Scienza delle Costruzioni (Aerospaziali), Università di Pisa, from a.a. 2017/18 to today.
- Teoria delle strutture 2, Università di Pisa, from a.a. 2018/19 to today.
- Elementi di elasticità non-lineare, Scuola di Dottorato “Civil and Environmental Engineering”, Università di Pisa, 2017/18.
- Teoria delle strutture 1 (20 hours), Università di Pisa, a.a. 2017/18.
- Statica, Università di Sassari, from a.a. 2002/03 to 2016/17.
- Complementi di Scienza delle Costruzioni, Università di Sassari, from a.a. 2004/05 to 2016/17.
- Scienza delle Costruzioni, Università di Sassari, from a.a. 2002/03 to 2011/12.
- Fisica Matematica, Università degli Studi di Udine, 2009/10.
- Meccanica Razionale 2, Università degli Studi di Udine, 2008/09.
- Elementi di elasticità non-lineare, Scuola di Dottorato di Ricerca in Architettura e Pianificazione XXIII ciclo, Curriculum Scienza e Tecnica delle Costruzioni, Università di Sassari, 2007/08.
- Calculus of variations and variational theory of elasticity 2, PhD course in Mathematics and Physics, Università degli Studi di Udine, 2006/07.

- Calculus of variations and variational theory of elasticity, PhD course in Mathematics and Physics, Università degli Studi di Udine, 2005/06.
- Ma123 Elementary Calculus, University of Kentucky, a.a. 2003/04.
- Analisi Matematica, Università di Sassari, a.a. 2002/03-2003/04.
- Scienza e Tecnica delle costruzioni, Università degli Studi di Sassari, 2001/02.
- Teoria delle Strutture, Università degli Studi di Udine, 2001/02.
- Assistant of Scienza delle Costruzioni, Università degli Studi di Udine, 2001/02.
- Assistant of Scienza delle Costruzioni, Università degli Studi di Udine, 2000/01.
- Calculus I, Carnegie Mellon University, Spring 1999.
- Ma114 Calculus II, Teaching assistant, University of Kentucky, Fall 1997.
- Ma213 Calculus III, Teaching assistant, University of Kentucky, Fall 1995.

October 22, 2024

Prof. Roberto Paroni

A handwritten signature in black ink, appearing to read 'Roberto Paroni', with a long horizontal flourish extending to the right.