

## Curriculum Vitae of Elena Vuk (last updated 17/03/2024)

### PERSONAL DATA

Born in Gorizia, Italy, May, 2nd, 1962  
Italian Citizenship

### CURRENT ADDRESS:

DICATAM, University of Brescia  
Section of Mathematics  
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### EDUCATION

- Ph.D. in Mathematics, July 20th, 1992, University of Bologna (Italy). Thesis title: Well-posed problems for materials with memory, Advisor: prof. M. Fabrizio.
- Laurea (master degree) cum laude in Mathematics, July 10th, 1986, University of Ferrara. Thesis title: First law of thermodynamics and its generalizations to the non-simple materials, Advisor: prof. M. Fabrizio.

### CURRENT ACADEMIC POSITION

Associate professor (full time) of Mathematical Physics (SSD - MAT07) at Department of Civil Engineering, Architecture, Land, Environment and of Mathematics, University of Brescia (Italy), since November 1st, 2006.

### FORMER ACADEMIC POSITIONS

- Assistant Professor of Mathematical Physics at University of Brescia (December 23th, 1991 - October 31th, 2006).
- Ph.D. Student (with an Italian government scholarship) at Mathematics Department, University of Bologna, (November 1st, 1987 - October 31th, 1991).

### FELLOWSHIPS

- Teaching Assistantship at Engineering faculty, University of Brescia (November 1st, 1986 - October 31th, 1987).

### SCIENTIFIC HABILITATION

- Mar 30th 2018: Italian full professorship habilitation in "Fisica Matematica" (Mathematical Physics) (01/A4).

## SCIENTIFIC ACTIVITY

- Key-words: Continuum Thermomechanics, Materials with memory, Asymptotic stability, Global attractor, Electromagnetic materials, Phase transition phenomena, Functionally graded materials, Pin fins.

- ERC subject classification: PE1 Mathematics
  - PE1-08 Analysis
  - PE1-12 Mathematical physics

- The scientific interests concern the analysis of integro-partial differential equations of mathematical physics with special attention to both theoretical and application points of view.

- Continuum thermomechanics: foundations of thermodynamics, modeling of viscoelastic and thermoviscoelastic solids, modeling of ferromagnetic and ferroelectric materials, modeling of non-newtonian fluids. Thermodynamics compatibility.

- Materials with memory: dynamics in viscoelasticity and thermoviscoelasticity, longtime behavior of solutions to integro-partial differential systems arising from materials with memory, absorbing sets and global attractors.

- Electromagnetic materials: modeling of electromagnetic materials with memory, variational principles, free energies and phase transitions phenomena, hysteresis.

- Electromagnetic materials: modeling of ferromagnetic and ferroelectric materials undergoing large deformations.

- Functionally graded materials: thermal diodes. Convecting-radiating fins: efficiency and optimization.

## PUBLICATIONS

- (1) C. Giorgi, E. Vuk, Hysteresis in deformable ferro-electroelastic materials, *Atti della Accademia Peloritana dei Pericolanti, Classe di Scienze Fisiche, Matematiche e Naturali* 101, No.2, A13, (2023), DOI:10.1478/AAPP.1012A13. ISSN:1825-1242
- (2) C. Giorgi, E. Vuk, Three-dimensional nonlocal models of deformable ferroelectrics: a thermodynamically consistent approach, *Applied Mathematical Modelling*, 122, (2023), 824-843, doi.org/10.1016/j.apm.2023.06.22. ISSN:0307-904X
- (3) N. Bazarra, I. Bochicchio, J.R. Fernández, E. Vuk, Asymptotic behavior and numerical approximation of a double-suspended bridge system, *Communications in Nonlinear Science and Numerical Simulation*, 124, (2023) 107302, doi.org/10.1016/j.cnsns.2023.107302. ISSN:10075704
- (4) S. Carillo, M.G. Naso, E. Vuk, and F. Zullo, Non-Rectification of Heat in Graded Si-Ge Alloys. In: Lacarbonara, W., Balachandran, B., Leamy, M.J., Ma, J., Tenreiro Machado, J.A., Stepan, G. (eds) *Advances in Nonlinear Dynamics. NODYCON Conference Proceedings Series*. Springer, Cham., First Online 19 July 2021. [https://doi.org/10.1007/978-3-030-81162-4\\_49](https://doi.org/10.1007/978-3-030-81162-4_49). ISBN online:978-3-030-81162-4

- (5) I. Bochicchio, M.G. Naso, E. Vuk, F. Zullo, Convecting-radiating fins: Explicit solutions, efficiency and optimization, *Appl. Math. Modell.*, 89 (2021) 171-187, DOI:10.1016/j.apm.2020.08.010. ISSN:0307-904X
- (6) M.G. Naso, E. Vuk, F. Zullo, On the optimization of heat rectification in graded materials, *Int. Journal Heat and Mass Transfer*, 143 (2019) 118520, doi.org/10.1016/j.ijheatmasstransfer.2019.118520. ISSN:0017-9310
- (7) M. Campo, J.R. Fernández, M.G. Naso, E. Vuk, Dynamics of nonlinear thermoelastic double-beam systems, *The Quarterly Journal of Mechanics and Applied Mathematics*, 72 (2019), 235-259, doi.org/10.1093/qjmam/hbz004. ISSN:0033-5614
- (8) I. Bochicchio, C. Giorgi, E. Vuk, Steady states and buckling of cable-suspended beam systems, *Meccanica*, 53 (2018), 3365-3381, DOI: 10.1007/s11012-018-0880-9. ISSN:0025-6455
- (9) I. Bochicchio, C. Giorgi, E. Vuk, Buckling and nonlinear dynamics of elastically-coupled double-beam systems, *International Journal Non-Linear Mechanics*, 85 (2016), 161-173, DOI: 10.1016/j.ijnonlinmec.2016.06.009. ISSN:0020-7462
- (10) I. Bochicchio, C. Giorgi, E. Vuk, Well-posedness and longtime behaviour of a coupled nonlinear system modeling a suspension bridge, *Meccanica*, 50 (2015), 665-673, DOI: 10.1007/s11012-014.9996-8. ISSN:0025-6455
- (11) I. Bochicchio, C. Giorgi, E. Vuk, Buckling and nonlinear dynamics of elastically-coupled double beams, *XXII Congresso AIMETA di Meccanica Teorica e Applicata*, Genova 14-17/09/2015, 181, De Ferrari Editore, 2015. (ISBN 978-88-97752-52-3)
- (12) A. Berti, C. Giorgi, E. Vuk, Hysteresis and temperature-induced transitions in ferromagnetic materials, *Appl. Math. Modell.*, 39 (2015), 820-837, DOI: 10.1016/j.apm.2014.07.004. ISSN:0307-904X
- (13) A. Berti, C. Giorgi, E. Vuk, First-order phase transitions and hysteresis, *Acta Appl. Math.*, 132 (2014), 73-82, DOI 10.1007/s10440-014-9906-z. ISSN:0167-8019
- (14) I. Bochicchio, C. Giorgi, E. Vuk, Long-term Dynamics of a Viscoelastic Suspension Bridge, *Meccanica*, 49 (2014), 2139-2151, DOI 10.1007/s11012-014-9887-z. ISSN:0025-6455
- (15) I. Bochicchio, C. Giorgi, E. Vuk, On the viscoelastic coupled suspension bridge, *Evolution Equations and Control Theory*, 3 (2014), 373-397, DOI 10.3934/EECT.2014.3.373. ISSN:2163-2480
- (16) C. Giorgi, E. Vuk, Steady-state solutions for a suspension bridge with intermediate supports, *Boundary Value Problems*, 2013, 2013:204, DOI: 10.1186/1687-2770-2013-204. ISSN:1687-2770

- (17) I. Bochicchio, C. Giorgi, E. Vuk, Asymptotic dynamics of non linear coupled suspension bridge equations, *J. Math. Anal. Appl.*, 402 (2013), 319-333, DOI: 10.1016/j.jmaa.2013.01.036. ISSN:0022-247X
- (18) A. Berti, C. Giorgi, E. Vuk, Free energies and pseudo-elastic transitions for shape memory alloys, *Discrete Contin. Dyn. Syst. Ser. S*, 6 (2013), 293-316, DOI:10.3934/DCDSS.2013.6.293. ISSN:1937-1632
- (19) I. Bochicchio, C. Giorgi, E. Vuk, Long-term dynamics of the coupled suspension bridge system, *Math. Models Methods Appl. Sci.*, 22 (2012), 1250021 (22 pages), DOI:10.1142/S0218202512500212. ISSN:0218-2025
- (20) I. Bochicchio, C. Giorgi, E. Vuk, On some nonlinear models for suspension bridges, in *Evolution Equations and Materials with Memory*, Atti del Convegno, Roma (Italy) 12-14 luglio 2010, 1-17, Eds: D. Andreucci, S. Carillo, M. Fabrizio, P. Loretì and D. Sforza, Univ. La Sapienza Ed., Roma 2011. (ISBN:978-88-95814-51-3).
- (21) A. Berti, C. Giorgi, E. Vuk, Free energies in one-dimensional models of magnetic transitions with hysteresis, *Nuovo Cimento Soc. Ital. Fis. B*, 125 (2010), 371-394, DOI: 10.1393/ncb/i2010-10891-5. ISSN:2037-4895
- (22) I. Bochicchio, C. Giorgi, E. Vuk, Longterm dynamics of an extensible elastic suspension bridge, *Int. J. Diff. Eqs.*, 2010, Article ID 383420, 420.1-420.19, DOI: 10.1155/2010/383420. ISSN:1687-9643
- (23) I. Bochicchio, E. Vuk, Longtime behavior for oscillations of an extensible viscoelastic beam with elastic external supply, *Int. J. Pure and Appl. Math.*, 58 (2010), 61-76. ISSN:1311-8080
- (24) I. Bochicchio, E. Vuk, Buckling and longterm dynamics of a nonlinear model for the extensible beam, *Math. Comput. Modelling*, 51 (2010), 833-846, DOI: 10.1016/j.mcm.2009.10.010. ISSN:0895-7177
- (25) I. Bochicchio, C. Giorgi, E. Vuk, Steady states analysis and exponential stability of an extensible thermoelastic system, *Communications to SIMAI Congress*, 3 (2009), 232.1-232.12, DOI: 10.1685/CSC09232. ISSN:1827-9015
- (26) C. Giorgi, V. Pata, E. Vuk, On the extensible viscoelastic beam, *Nonlinearity*, 21 (2008), 713-733. ISSN:0951-7715
- (27) C. Giorgi, V. Pata, E. Vuk, Global attractor for an extensible viscoelastic beam, XVIII Congresso AIMETA di Meccanica Teorica e Applicata, Brescia 11-14/09/2007, 358, Starrylink Editrice, 2007.
- (28) I. Bochicchio, E. Vuk, Longtime behavior for damped oscillations of a nonlinear viscoelastic beam, XVIII Congresso AIMETA di Meccanica Teorica e Applicata, Brescia 11-14/09/2007, 356, Starrylink Editrice, 2007.

- (29) S. Gatti, E. Vuk, Singular limit of equations for linear viscoelastic fluids with periodic boundary conditions, *Int. J. Nonlinear Mechanics*, 41 (2006), 518-526. ISSN:0020-7462
- (30) M.G. Naso, J. Muñoz Rivera, E. Vuk, Asymptotic behavior for electromagnetic systems with memory, *Math. Meth. Appl. Sci.*, 7 (2004), 819-841, DOI: 10.1002/mma.473. ISSN:0170-4214
- (31) A. Marzocchi, E. Vuk, Global attractor for damped semilinear elastic beam equations with linear memory, *Z. angew. Math. Phys.*, 54 (2003), 224-234. ISSN:0044-2275
- (32) A. Marzocchi, E. Vuk, Asymptotic behavior for a model of transverse vibrations of a bar with linear memory, *Mathematical models and methods for smart materials*, Cortona 25-29/06/2001, 231-234, *Ser. Adv. Math. Appl. Sci.*, 62, World Sci. Publishing, River Edge, NJ, 2002.
- (33) M.G. Naso, E. Vuk, Uniform attractors for a semilinear evolution problem in hereditary simple fluids, *Internat. J. Engng. Sci.*, 40 (2002), 727-742, DOI: 10.1016/S0020-7225(01)00095-7. ISSN:0020-7225
- (34) M.G. Naso, E. Vuk, On the exponential stability of electromagnetic systems with memory, *Int. Math. J.*, 1 (2002), 575-590. ISSN:1311-6797
- (35) C. Giorgi, M.G. Naso, E. Vuk, Exponential stability in viscoelastic and elastic systems with thermal memory, *Int. J. Diff. Eqs. and Appl.*, 2 (2001), 55-91. ISSN:1311-2872
- (36) E. Vuk, Variational principles in electromagnetism with memory, *Ann. Mat. Pura Appl.*, 179 (2001), 95-110. ISSN:0373-3114
- (37) V. Pata, E. Vuk, On the exponential stability in thermoelasticity, *Cont. Mech. Thermodyn.*, 12 (2000), 121-130. ISSN:0935-1175
- (38) B. Lazzari, E. Vuk, Minimum principles in electromagnetism with memory, *Int. J. Appl. Math.*, 1 (1999), 461-474. ISSN:1311-1728
- (39) C. Giorgi, E. Vuk, Extremum principles in electromagnetic systems, *Rend. Circ. Mat. Palermo*, 48 (1999), 265-284. ISSN:0009-725X
- (40) B. Lazzari, E. Vuk, Asymptotic behaviour for symmetric hyperbolic dissipative systems, *Differential Integral Equations*, 10 (1997), 273-287. ISSN:0893-4983
- (41) E. Vuk, A dynamic problem in linear thermoviscoelasticity, *Riv. Mat. Univ. Parma*, (5) 4 (1995), 121-135. ISSN:0035-6298
- (42) B. Lazzari, E. Vuk, Dominio di dipendenza in termoviscoelasticità lineare, *Atti del XV Congresso U.M.I.*, Padova 11-16/09/1995, 183
- (43) B. Lazzari, E. Vuk, Constitutive equations and quasi-static problem in linear thermoviscoelasticity, *Internat. J. Engng. Sci.*, 30 (1992), 533-544. ISSN:0020-7225

- (44) E. Vuk, Un teorema di esistenza e unicità per un fluido viscoso con memoria, *Ann. Univ. Ferrara, Sez.VII (N.S.)*, 36 (1990), 63-72. ISSN:0430-3202
- (45) B. Lazzari, E. Vuk, Sul comportamento asintotico dell'energia elettromagnetica in un materiale dielettrico lineare, *Boll. Un. Mat. Ital. B(7)*, 4 (1990), 155-177. ISSN:0392-4041
- (46) B. Lazzari, E. Vuk, Stability problems for an integrodifferential evolution equation for theories of non conducting material dielectrics, *Proceeding of the IV International Conference on Waves and Stability in Continuous Media*, Taormina (CT), 4-9/10/1987, 314-319, A. Donato and S. Giambò, Eds. Editel, Cosenza, 1989.
- (47) B. Lazzari, E. Vuk, Un teorema di esistenza e unicità per un problema dinamico in viscoelasticità lineare, *Atti Sem. Mat. Fis. Univ. Modena*, 35 (1987), 309-317. ISSN:0041-8986

#### INTERNAL REPORTS

- (1) E. Vuk, Principi variazionali in elettromagnetismo ereditario, *Quad. Sem. Mat. Brescia*, 10 (1998).
- (2) B. Lazzari, E. Vuk, Domain of influence and asymptotic stability in linear thermoviscoelasticity, *Quad. Sem. Mat. Brescia*, 11 (1995).
- (3) E. Vuk, Problemi ben posti per materiali con memoria, PhD Thesis in Mathematics (III ciclo), Roma, 20/07/1992, 1-89.

#### OTHER PUBLICATIONS

- (1) M.G. Naso, E. Vuk, *Meccanica Razionale - Temi d'esame A.A. 1999/2000*, Snoopy Brescia, 2001.
- (2) M.G. Naso, E. Vuk, *Fisica Matematica - Temi d'esame A.A. 1998/99*, Snoopy Brescia, 2000.
- (3) M.G. Naso, E. Vuk, *Meccanica Razionale - Temi d'esame A.A. 1998/99*, Snoopy Brescia, 2000.
- (4) M.G. Naso, E. Vuk, *Meccanica Razionale - Temi d'esame A.A. 1997/98*, Snoopy Brescia, 1999.
- (5) M.G. Naso, E. Vuk, *Meccanica Razionale - Temi d'esame A.A. 1996/97*, Snoopy Brescia, 1999.
- (6) M.G. Naso, E. Vuk, *Meccanica Razionale - Temi d'esame A.A. 1995/96*, Snoopy Brescia, 1999.

- (7) C. Giorgi, M. Longhi, E. Vuk, Cicli di seminari didattici e scientifici in onore di Bruno Finzi, Brescia, 1995.
- (8) E. Vuk, Meccanica Razionale - Temi d'esame A.A. 1994/95, CUSL Milano, 1996.
- (9) E. Vuk, Meccanica Razionale - Temi d'esame A.A. 1993/94, CUSL Milano, 1995.
- (10) E. Vuk, Meccanica Razionale - Temi d'esame A.A. 1992/93, CUSL Milano, 1994.
- (11) E. Vuk, Meccanica Razionale - Temi d'esame A.A. 1991/92, CUSL Milano, 1993.

#### COMMUNICATIONS

- (1) E. Vuk, Giochiamo con il caso? L'azzardo calcolato. Pr.O.M.E.T.E.U.S. Project, Brescia, 14/11/2023-10/01/2024.
- (2) E. Vuk, Longterm dynamics of a nonlinear double-suspended bridge system, GADES 2023, L'Aquila 11-12/09/2023.
- (3) E. Vuk, Giochiamo con il caso? L'azzardo calcolato. Pr.O.M.E.T.E.U.S. Project, Brescia, 18/04/2023-15/05/2023.
- (4) E. Vuk, A vector-valued model for deformable ferroelectrics, Inter-University Meeting in Math Phys, University of Salerno and Ferrara, 04/07/2022 (online).
- (5) I. Bochicchio, E. Vuk, Analysis of a cable-suspended double beam system, WASCOM2021, Catania 6-10/06/2022.
- (6) E. Vuk, Asymptotic behavior of a suspension double-beam girder bridge, One-day Workshop in Math Phys, Vigo (Spain) 17/12/2021 (online).
- (7) S. Carillo, M.G. Naso, E. Vuk, F. Zullo, Non heat rectification in graded Si-Ge alloys, NODYCON 2021, Roma 16-19/02/2021 (online).
- (8) E. Vuk, Les jeux sont faits, No Slot Day 2020, Brescia 4/02/2020.
- (9) I. Bochicchio, C. Giorgi, E. Vuk, Alcuni risultati di statica e dinamica per sistemi trave-trave e cavo-trave elasticamente accoppiati, Ferrara 8/11/2018.
- (10) I. Bochicchio, C. Giorgi, E. Vuk, Steady states and nonlinear buckling of cable-suspended beam systems, MASCOT2018, 15th Meeting on applied scientific computing and tools, Roma 02-05/10/2018.
- (11) I. Bochicchio, C. Giorgi, E. Vuk, A coupled cable-beam system: steady states and nonlinear buckling, Fifth Conference on "New Trends in Fluid and Solid models", Vietri sul Mare - Salerno 30/01- 01/02/2018.

- (12) I. Bochicchio, C. Giorgi, E. Vuk, Steady states and nonlinear buckling of a cable-beam system, Conference Continuum physics: a "rational" approach, Brescia 25-27/05/2017.
- (13) I. Bochicchio, C. Giorgi, E. Vuk, Modeling and steady states of a linear suspension bridge model, V Riunione del Gruppo AIMETA di Dinamica e Stabilità, Brescia 15-16/09/2016.
- (14) A. Berti, C. Giorgi, E. Vuk, A vector-valued model for the Curie transition in ferroelectrics, XIII SIMAI Biannual Congress, Milano 13-16/09/2016.
- (15) E. Vuk, Buckling and nonlinear dynamics of elastically-coupled double beams, XXII Congresso AIMETA 2015, Genova 14-17/09/2015.
- (16) I. Bochicchio, C. Giorgi, E. Vuk, The nonlinear coupled suspension bridge equations: steady state analysis and long-time behaviour, XXI Congresso AIMETA 2013, Torino 17-20/09/2013.
- (17) E. Vuk, Asymptotic dynamics of non linear suspension bridge, Congresso Nazionale SIMAI 2012, Torino 25-28/06/2012.
- (18) E. Vuk, Free energies in shape memory alloys, Assemblea Scientifica del G.N.F.M., Montecatini (PT) 03-05/03/2011.
- (19) E. Vuk, Longterm damped dynamics of the extensible suspension bridge, Assemblea Scientifica del G.N.F.M., Montecatini (PT) 01-03/10/2009.
- (20) E. Vuk, Steady states of the extensible elastic suspended bridge, Second International Conference on New Trends in Fluid and Solid Models, Vietri (SA) 19-21/03/2009.
- (21) E. Vuk, Longtime behavior for oscillations of an extensible viscoelastic beam with external damping and elastic supply, International Conference on New Trends in Fluid and Solid Models, Vietri (SA) 28-29/02 - 01/03/2008.
- (22) E. Vuk, Global attractor for an extensible viscoelastic beam, XVIII Congresso AIMETA, Brescia 11-14/09/2007.
- (23) I. Bochicchio, E. Vuk, Longtime behavior for damped oscillations of a nonlinear viscoelastic beam, XVIII Congresso AIMETA , Brescia 11-14/09/2007.
- (24) E. Vuk, Comportamento asintotico dell'energia per sistemi elettromagnetici con memoria, Modelli Matematici per la Scienza dei Materiali, Incontro Scientifico a medio termine COFIN 2000, Bressanone (BZ) 13-15/12/2001.
- (25) A. Marzocchi, E. Vuk, Asymptotic behavior for a model of transverse vibration of a bar with linear memory, Workshop IperBS 2000, Brescia 30/11-02/12/2000.
- (26) E. Vuk, Attrattori globali per equazioni semilineari per materiali semplici con memoria, Modelli Matematici per la Scienza dei Materiali, Incontro Scientifico finale COFIN 1998, Raito (SA) 22-25/11/2000.



- (27) E. Vuk, Buona posizione e decadimento esponenziale delle soluzioni in conduttori con memoria, Modelli Matematici per la Scienza dei Materiali, Incontro Scientifico a medio termine COFIN 1998, Bressanone (BZ) 25-28/01/2000.
- (28) E. Vuk, Principi variazionali e di mini-max in elettromagnetismo, Meccanica del Continuo e Metodi e Modelli Matematici nelle Scienze Applicate, Maratea (PZ) 17-19/06/1996.
- (29) E. Vuk, Dominio di dipendenza in termoviscoelasticità lineare, XV Congresso U.M.I., Padova 11-16/09/1995.
- (30) E. Vuk, Introduzione alla navigazione spaziale, Cicli di seminari didattici e scientifici in onore di Bruno Finzi, Facoltà di Ingegneria, Brescia 12/05-07/06/1995.
- (31) E. Vuk, Alcune osservazioni sui sistemi iperbolici dissipativi, Assemblea scientifica del G.N.F.M., Roma 25-27/10/1993.
- (32) E. Vuk, Termoviscoelasticità lineare e il problema quasi-statico, Cicli di Seminari di Fisica Matematica, Ferrara 1-30/10/1992.
- (33) E. Vuk, Sulle equazioni linearizzate per materiali termoviscoelastici: relazioni ed equazioni costitutive, Materiali dotati di memoria e continui con microstrutture, Incontro INDAM, Cortona (AR) 21-24/05/1991.

#### COURSES AND SCHOOLS

- XXX, XX, IXX, XVII, XV, XIII, XII, XI Scuola Estiva di Fisica Matematica, G.N.F.M., Ravello (SA).
- Course C.I.M.E., Crack and Contact Problems for Viscoelastic Bodies, Udine 05-09/09/1994.
- Course Modelli matematici in Meccanica dei Continui: costruzione, proposte, aggiornamenti, Brescia 25-27/02/2008.
- Course Problemi matematici nella Fisica dei Cristalli e dei Quasicristalli, Brescia 2-4/02/2009.
- Course Non-linear propagation and non-equilibrium thermodynamics, Brescia 23-25/01/2017.
- Course Trends in Continuum Mechanics of complex and biological materials, Brescia 17-18/02/2021 (online).
- Course Introduzione ai modelli matematici per i cristalli liquidi, Brescia 31/01-02/02/2024.

#### CONFERENCES, WORKSHOPS, CONGRESSES

- Symposium on Kinetic Theory and Extended Thermodynamics, Bologna 18-22/05/1987;
- Convegno Italo - Polacco sulla Teoria Cinetica e la Termodinamica Estesa, Bologna 3-6/06/1987;
- IV International Conference on Waves and Stability in Continuous Media, Taormina (CT) 4-9/10/1987;
- Meeting on Rational Mechanics and Analysis, Pisa 22-26/05/1989;
- Minisimposio di Fisica Matematica, Ferrara 08-12/10/1990;
- Materiali dotati di memoria e continui con microstrutture, Incontro INDAM, Cortona (AR) 21-24/05/1991;

- New developments in partial differential equations and applications to mathematical physics, Ferrara 14-18/10/1991;
- Workshop on Navier-Stokes equations and bounded domains, Ferrara 21-23/01/1992;
- Conferences in honour of J.B. Serrin, Ferrara 26-30/10/1992;
- VII International Conference on Waves and Stability in Continuous Media, Bologna 4-9/10/1993;
- Assemblée Scientifica del G.N.F.M., Roma 25-27/10/1993;
- Crack and Contact Problems for Viscoelastic Bodies, Udine 05-09/09/1994;
- Conferences in honour of B. Finzi, Brescia, 12/05-07/06/1995;
- XV Congress U.M.I., Padova 11-16/09/1995;
- VIII International Conference on Waves and Stability in Continuous Media, Palermo 9-14/10/1995;
- Giornate di studio su problemi differenziali iperbolici, Bologna 9-10/11/1995;
- Meccanica del Continuo e Metodi e Modelli Matematici nelle Scienze Applicate, Maratea (PZ) 17-19/06/1996;
- Modelli Matematici per la Scienza dei Materiali, Incontro Scientifico a medio termine COFIN 1998, Bressanone (BZ) 25-28/01/2000;
- Nuovi progressi della Fisica Matematica dall'eredità di Dario Graffi, Bologna 24-27/05/2000;
- Giornate di studio su equazioni integrodifferenziali alle derivate parziali e applicazioni, Salò (BS) 23-24/06/2000;
- Modelli Matematici per la Scienza dei Materiali, Incontro Scientifico finale COFIN 1998, Raito (SA) 22-25/11/2000;
- Workshop IperBS 2000, Brescia 30/11-2/12/2000;
- Modelli matematici e problemi analitici per materiali speciali, Cortona (AR) 25-29/06/2001;
- Assemblée Scientifica del G.N.F.M., Montecatini (PT) 24-27/10/2001;
- Modelli Matematici per la Scienza dei Materiali, Incontro Scientifico a medio termine COFIN 2000, Bressanone (BZ) 13-15/12/2001;
- Workshop IperFE 2002, Ferrara 10-12/10/2002;
- VII Congresso Nazionale SIMAI, Venezia 20-24/09/2004;
- Assemblée Scientifica del G.N.F.M., Montecatini (PT) 28-30/10/2004;
- Modelli matematici per la Scienza dei Materiali, Incontro Scientifico finale COFIN 2002, Ferrara 02-04/12/2004;
- Applicazioni della matematica nelle scienze, Workshop in honour of Carlo Banfi, Brescia, 22-23/04/2005;
- Assemblée Scientifica del G.N.F.M., Montecatini (PT) 06-08/04/2006;
- Modelli Matematici nella Fisica del Continuo, Incontro Scientifico MIUR-COFIN 2005, Bologna 23/06/2006;
- Assemblée del Collegio dei Docenti di Fisica Matematica, Bologna 24/06/2006;
- Materiali speciali e memorie: problemi modellistici e analitici, Salò (BS) 13-15/07/2006;
- Modelli Matematici nella Fisica del Continuo, Incontro Scientifico a medio termine MIUR-COFIN 2005, Bologna 20/12/2006;
- Incontro sulle Equazioni alle Derivate Parziali, Pavia 20/02/2007;
- XVIII Congresso AIMETA, Brescia 11-14/09/2007;
- Workshop on Mathematical Models for Complex Systems, Cortona (AR) 26-29/09/2007;
- Assemblée Scientifica del G.N.F.M., Montecatini (PT) 11-13/10/2007;
- VI Giornata di Studio su Equazioni Differenziali e Calcolo delle Variazioni, Milano 18/10/2007;
- International Conference on New Trends in Fluid and Solid Models, Vietri (SA) 28-29/02-01/03/2008;

- Advanced Numerical Methods in Seismology, Brescia 17/11/2008;
- Second International Conference on New Trends in Fluid and Solid Models, Vietri (SA) 19-21/03/2009;
- Mathematical Models and Analytical Problems for Special Materials, Brescia 09-11/07/2009;
- Assemblea Scientifica del G.N.F.M., Montecatini (PT) 01-03/10/2009;
- Modelli Numerici per Equazioni Differenziali, Milano 01/12/2010;
- Assemblea Scientifica del G.N.F.M., Montecatini (PT) 03-05/03/2011;
- CIMAB - GASVA SIMAI Young Researcher Workshop on Theoretical Approaches and Related Mathematical Methods in Biology and Medicine, L'Aquila 30/11-02/12/2011;
- MathProSpeM, Roma 16-20/04/2012;
- Congresso Nazionale SIMAI 2012, Torino 25-28/06/2012;
- Assemblea Scientifica del G.N.F.M., Montecatini (PT) 04-06/10/2012;
- XXI Congresso AIMETA 2013, Torino 17-20/09/2013;
- Giornata della Ricerca del DICATAM, Brescia 21/01/2014;
- III Riunione del Gruppo AIMETA di Dinamica e Stabilità, Firenze 16-17/10/2014;
- Convegno Frontiere, Accademia Nazionale dei Lincei, Roma 29-30/01/2015;
- XXII Congresso AIMETA 2015, Genova 14-17/09/2015;
- Convegno Modelli matematici nella conservazione e valorizzazione dei beni culturali, Accademia Nazionale dei Lincei, Roma 15-16/12/2015;
- XIII SIMAI Biannual Congress, Milano 13-16/09/2016;
- V Riunione del Gruppo AIMETA di Dinamica e Stabilità, Brescia 15-16/09/2016;
- Workshop Fractional calculus and its applications, Roma 27/01/2017;
- Per una definizione non univoca del concetto di conservazione. La figura e gli scritti di Gian Paolo Treccani, Brescia 31/01/2017;
- Assemblea Scientifica GNFM, Montecatini Terme, 04-06/05/2017;
- Uni.BS.Ing: Attualità e prospettive del laureato in Ingegneria, Brescia 16/05/2017;
- Conference Continuum physics: a "rational" approach, Brescia 25-27/05/2017;
- Maths from the body, Brescia 29-31/05/2017;
- XIX International Conference on Waves and Stability in Continuous Media, WASCOM 2017, Bologna 12-16/06/2017;
- International Workshop "Studies of seismicity induced by gas storage", Brescia 11/12/2017;
- D.I.C.A.T.A.M. Day 2018, Giornata della Ricerca, Brescia 06/02/2018;
- La freccia del tempo, Un ciclo di conferenze sui recenti sviluppi della termodinamica, Brescia 10-12-17-19/04/2018;
- MASCOT2018, 15th Meeting on applied scientific computing and tools, Roma 02-05/10/2018;
- Assemblea Scientifica GNFM, Montecatini Terme 04-06/10/2018;
- Workshop "Mathematics for BioMedicine", Accademia dei Lincei, Roma 08-11/10/2018;
- Giornata del DICACIM, Brescia 30/01/2019;
- Assemblea UMI, Bologna 24/05/2019;
- Maths from the body II, Venezia 6-8/06/2019;
- WASCOM 2019, Maiori (SA) 10-14/06/2019.
- Giornata di studio in memoria di Baldassare Bacchi, Brescia 18/11/2019;
- No Slot Day 2020, Brescia 4/02/2020;
- 60 minutes of Continuum Mechanics, Webinar, Brescia 16/11/2020;
- Second International Nonlinear Dynamics Conference (NODYCON 2021), Roma 16-19/02/2021 (online);
- One-day Workshop in Math Phys, Vigo (Spain) 17/12/2021 (online);
- Assemblea Scientifica GNFM, Montecatini Terme 05-07/05/2022;

- Grammatica della Matematica, Brescia 5-12-19/05/2022;
- WASCOM 2021, Catania 06-10/06/2022;
- STAMM2022, Brescia 15-17/06/2022;
- Inter-University Meeting in Mah Phys, 04/07/2022 (online);
- Meccanica dei Continui e Termodinamica, Brescia 31/01/2023;
- Conoscenze matematiche per futuri studenti universitari: autovalutazione, verifica e consolidamento. Pr.O.M.E.T.E.U.S. Project, Brescia, 18/04-15/05/2023;
- GADES 2023, L'Aquila 11-12/09/2023;
- Conoscenze matematiche per futuri studenti universitari: autovalutazione, verifica e consolidamento. Pr.O.M.E.T.E.U.S. Project, Brescia, 14/11/2023-10/01/2024.

#### ORGANIZER ACTIVITY

- Conference: Materiali speciali e memorie: problemi modellistici e analitici, Salò (BS) 4-6/07/2002;
- V Riunione del Gruppo AIMETA di Dinamica e Stabilità, Brescia 15-16/09/2016;
- Conference: Continuum physics: a "rational" approach, Brescia 25-27/05/2017.

#### SERVICES ACTIVITY

- Referee for some international journals:
  - Boundary Value Problems
  - International Journal of Mechanical Sciences
  - Communications in Nonlinear Science and Numerical Simulations
  - Electronic Journal of Differential Equations
  - Evolution Equations and Control Theory
  - Nonlinear Analysis
  - Mathematical Methods in the Applied Sciences
  - AIMS Mathematics
  - Arabian Journal of Mathematics
  - Advanced in Mathematics and Computer Science
  - Mathematics and Computers in Simulation
  - Asian Research Journal of Mathematics
  - Nonlinear Analysis: Real World Applications
  - ZAMM-Journal of Applied Mathematics and Mechanics
  - Journal of Applied Analysis
- Referee for the evaluation of projects FIRB 2013.
- Expert REPRIZE (Register of Expert Peer Reviewers for Italian Scientific Evaluation) (from 2013)

#### RESEARCH GROUP

- Member of the following scientific research projects of national relevance:
  - Prin 2005: Mathematical Models and Methods in Continuum Physics. Scientific coordinator: Angelo Morro
  - GNFM-INDAM Project 2001: Control problems for memory and special materials. Scientific coordinator: Claudio Giorgi
  - Prin 1998-2002: Mathematical Methods in Material Science. Scientific coordinator: Paolo Podio Guidugli

- Prin 1995: Mathematical Models and Methods in Continuum Mechanics. Scientific coordinator: Mauro Fabrizio
- Prin 1987-1993: Evolution problems in Fluids and Solids. Scientific coordinator: Salvatore Rionero

#### MEMBERSHIPS

- 1986-present: GNFM, Gruppo Nazionale Fisica Matematica.
- 1991-present: Seminario Matematico di Brescia.
- 1995-present: UMI, Unione Matematica Italiana.
- 2000-present: SIMAI, Società Italiana di Matematica Applicata ed Industriale.
- 2007-present: AIMETA, Associazione Italiana di Meccanica Teorica e Applicata.
- 2014-present: GADeS, Gruppo Aimeta di Dinamica e Stabilità.

#### TEACHING ACTIVITY

At the Engineering school, University of Brescia:

##### ACADEMIC YEAR 2023/24

- Lecturer for the course Meccanica Razionale (Rational Mechanics). SSD MAT/07, 9cfu (Lecture, exercises). Bachelor degree in Civil Engineering, Environmental and Land Engineering.
- Lecturer for the course Probabilità e Statistica (Probability and Statistics) Section 2. SSD MAT/07, 6cfu (Lecture, exercises). Bachelor degree in Computer Science and Engineering, Electronics and Telecommunications Engineering.
- Lecturer for the course Statistica per l'Ingegneria (Statistics for Engineering) SSD MAT/07, 6cfu (Lecture, exercises). Bachelor degree in Digital Enterprise Technologies Engineering.

##### ACADEMIC YEAR 2022/23

- Lecturer for the orientation course within the Pr.O.M.E.T.E.U.S. project organized by the University of Brescia, funded by the PNRR: “Mathematical knowledge for future undergraduates: self-assessment, knowledge check and consolidation”, 18/04/2023-15/05/2023.(Course: Giochiamo con il caso? L'azzardo calcolato. 4 hours)
- Lecturer for the course Meccanica Razionale (Rational Mechanics). SSD MAT/07, 9cfu (Lecture, exercises: 98 hours). Bachelor degree in Civil Engineering, Environmental and Land Engineering.
- Lecturer for the course Probabilità e Statistica (Probability and Statistics) Section 2. SSD MAT/07, 6cfu (Lecture, exercises: 32 hours). Bachelor degree in Computer Science and Engineering, Electronics and Telecommunications Engineering.
- Lecturer for the course Statistica per l'Ingegneria (Statistics for Engineering) SSD MAT/07, 6cfu (Lecture, exercises: 30 hours). Bachelor degree in Digital Enterprise Technologies Engineering.

##### PREVIOUS YEARS

- 2021/22. Lecturer:
- Lecturer for the course Meccanica Razionale (Rational Mechanics). SSD MAT/07, 9cfu (Lecture, exercises: 108 hours). Bachelor degree in Civil Engineering, Environmental and Land Engineering.

- Lecturer for the course Probabilità e Statistica (Probability and Statistics) Section 2. SSD MAT/07, 6cfu (Lecture, exercises: 30 hours). Bachelor degree in Computer Science and Engineering, Electronics and Telecommunications Engineering.

- Lecturer for the course Statistica per l'Ingegneria (Statistics for Engineering) SSD MAT/07, 6cfu (Lecture, exercises: 32 hours). Bachelor degree in Digital Enterprise Technologies Engineering.

- 2020/21. Lecturer:

- Suspension bridges: modeling, steady states and buckling. Ph.D. in Civil, Environmental, International Cooperation and Mathematics”, XXXVI cycle.

- 2014/15 - 2020/21. Lecturer:

- Meccanica Razionale. Bachelor degree in Civil Engineering, Environmental and Land Engineering.

- Probabilità e Statistica. Bachelor degree in Computer Science and Engineering, Electronics and Telecommunications Engineering.

- 2013/14. Lecturer:

- Meccanica Razionale. Bachelor degree in Civil Engineering, Environmental and Land Engineering.

- Probabilità e Statistica. Bachelor degree in Computer Science and Engineering, Electronics and Telecommunications Engineering.

- Meccanica Razionale. Master degree in Architecture Engineering.

- 2012/13. Lecturer:

- Meccanica Razionale. Bachelor degree in Civil Engineering, Environmental and Land Engineering.

- Probabilità e Statistica. Bachelor degree in Computer Science and Engineering, Electronics and Telecommunications Engineering.

- 2011/12. Lecturer:

- Meccanica Razionale. Bachelor degree in Civil Engineering, Environmental and Land Engineering.

- 2010/11. Lecturer:

- Meccanica Razionale. Bachelor degree in Civil Engineering, Environmental and Land Engineering.

- Probabilità e Statistica. Bachelor degree in Computer Science and Engineering, Electronics and Telecommunications Engineering.

- 2009/10. Lecturer:

- Meccanica Razionale. Bachelor degree in Civil Engineering, Environmental and Land Engineering.

- Probabilità e Statistica. Bachelor degree in Computer Science and Engineering, Electronics and Telecommunications Engineering.

- Probabilità e Statistica. Master degree in Civil Engineering.

- 2008/09. Lecturer:

- Probabilità e Statistica. Bachelor degree in Computer Science and Engineering.

- Probabilità e Statistica. Bachelor degree in Environmental Engineering and Master degree in Land Engineering.

- Probabilità e Statistica. Course of Preparatory Path to Engineering Studies.

- Meccanica Razionale. Course of Preparatory Path to Engineering Studies.

- 2006/07- 2007/08. Lecturer:
  - Probabilità e Statistica. Bachelor degree in Computer Science and Engineering.
  - Probabilità e Statistica. Bachelor degree in Enviromental Engineering and Master degree in and Land Engineering.

- 2004/05-2005/06. Lecturer:
  - Probabilità e Statistica, Bachelor degree in Computer Science and Engineering.
  - Probabilità e Statistica, Bachelor degree in Civil Engineering, Enviromental and Land Engineering.

Assistant:

- Meccanica Razionale M (Rational Mechanics M). Master degree in Mechanical Engineering, Material Engineering e Industrial Automation Engineering.

- 2003/04. Lecturer:

- Probabilità e Statistica. Bachelor degree in Enviromental and Land Engineering.

Assistant:

- Meccanica Razionale. Bachelor degree in Civil Engineering, Enviromental and Land Engineering.

- 2001/02. Lecturer:

- Meccanica Razionale. Bachelor degree in Civil Engineering, Enviromental and Land Engineering.

Assistant:

- Meccanica Razionale. Master degree in Civil Engineering, Mechanical Engineering.

- 1998/99-2000/01. Lecturer:

- Fisica Matematica D.U. (Mathematical Physics). Bachelor degree in Mechanical Engineering.

Assistant:

- Meccanica Razionale. Master degree in Civil Engineering, Mechanical Engineering.

- 1997/98. Assistant:

- Meccanica Razionale. Master degree in Civil Engineering, Mechanical Engineering.

- 1995/96. Assistant:

- Statistica e Calcolo delle Probabilità. Master degree in Management Engineering.

- Meccanica Razionale. Master degree in Civil Engineering, Mechanical Engineering.

- 1991/92-1994/95. Assistant:

- Meccanica Razionale. Master degree in Civil Engineering, Mechanical Engineering.

- 1989/90-1990/91. Teaching Assistant:

- Meccanica Razionale. Master degree in Civil Engineering, Electronics Engineering, Mechanical Engineering.

- 1986/87. Teaching Assistant:

- Meccanica Razionale. Master degree in Civil Engineering, Electronics Engineering, Mechanical Engineering.

#### MASTER STUDENTS CO-ADVISED

B. Vanzani, Principi variazionali e condizioni al contorno in elettromagnetismo, Master degree in Mathematics, Advisor prof. C. Giorgi. Catholic University of Brescia, A.A. 1995/1996.

## HIGHTER LEARNING ACTIVITY

- member of the "Ph.D. in Civil, Environmental, International Cooperation and Mathematics", A.A. 2018/19 (adesione del 28/02/2018), 2019/20, 2022/23, 2023/24, XXXIV - XXXV - XXXVIII, IXXXX cycle. University of Brescia.
- PH.D. STUDENTS CO-ADVISED

I. Bochicchio, Longtime behavior for nonlinear models of a viscoelastic beam, Ph.D. in Mathematics, Advisor prof. E. LaSerra. University of Salerno, 23/01/2008.

## MANAGEMENT ACTIVITY

- 05/07/2017 - 02/11/2020: member of the Governing Board of CeSiA (Center of Study and Research of Applied Seismology and Structural Dynamics) of Brescia.
- 16/03/2016 - 28/02/2023: member of the joint commission professor-student of the Department of Civil Engineering, Architecture, Land, Environment and of Mathematics.
- 2013-present: member of the commission on the procedures for admission to the degrees of Engineering (TOLC).
- 2010-2011: member of the National Selection Committee for the confirmation in the role of University Researchers SSD MAT/07.
- 2008-2010: member of the Commission Guidance plans of studies degree in Computer Engineering, Electronics and Telecommunications, Engineering faculty, University of Brescia.
- 2006-2012: member of the Library Board of the Department of Mathematics, Engineering faculty, University of Brescia.
- 2006-2012: recording secretary of the board of the Department of Mathematics, Engineering faculty, University of Brescia.
- 2003-2006: representative of researchers in the Engineering Faculty Council, University of Brescia.
- Member of the following Commissions:
  - November 2023: for the selection procedure for 1 position as type B researcher for the SSD MAT/07 (Mathematical Physics) at the Department of Mathematics "Tullio Levi-Civita", University of Padova. (appointed 09/11/2023)
  - June 2023: for the selection procedure for 1 position as type B researcher for the SSD MAT/07 (Mathematical Physics) at the Department of Mathematics and Physics, University of Campania. (appointed 01/06/2023)(President)
  - October 2021: for the selection procedure for 1 position as type A researcher for the SSD MAT/07 (Mathematical Physics) at the Department of Mathematics, University of Napoli. (appointed 22/10/2021)
  - August 2021: for the selection procedure for 1 position as type B researcher for the SSD MAT/07 (Mathematical Physics) at the Department of Mathematics "F. Casorati", University of Pavia. (appointed 31/08/2021)
  - October 2020: for a associate professor position for the SSD MAT/07 (Mathematical Physics) at DICATAM, University of Brescia. (appointed 5/10/2020)
  - January 2019: member of the PhD thesis examining board in Applied Mathematics of dr.ssa Noelia Bazarra, University of Vigo, Spain. (appointed 01/31/2019)
  - October 2013: for the assignment of n. 1 research grant for the SSD MAT/07 (Mathematical Physics) at the DICATAM, Section of Mathematics, University of Brescia.



- May 2009: for the assignment of n. 1 research grant for the SSD MAT/07 (Mathematical Physics) at the Department of Mathematics, Engineering faculty, University of Brescia.
- May 2008: for the assignment of n. 1 research grant for the SSD MAT/07 (Mathematical Physics) at the Department of Mathematics, Engineering faculty, University of Brescia.
- December 2007: for the assignment of n. 1 research grant for the SSD MAT/08 (Numerical Analysis) at the Department of Mathematics, Engineering faculty, University of Brescia.
- March 2007: for the assignment of n. 1 research grant for the SSD MAT/07 (Mathematical Physics) at the Department of Mathematics, Engineering faculty, University of Brescia.
- June 2005: for the assignment of n. 1 research grant for the SSD MAT/07 (Mathematical Physics) at the Department of Mathematics, Engineering faculty, University of Brescia.
- June 2005: for a research position for the SSD MAT/07 (Mathematical Physics) at the Polytechnic of Turin.

### **THIRD MISSION ACTIVITY**

- No Slot Day 2020: Information day on pathological gambling dedicated to 4th and 5th year students of upper secondary schools, Brescia 4/11/2020.
- Mathematical knowledge for future undergraduates: self-assessment, knowledge check and consolidation. Orientation course within the Pr.O.M.E.T.E.U.S. project organized by the University of Brescia, funded by the PNR, Brescia 18/04-15/05/2023.
- Mathematical knowledge for future undergraduates: self-assessment, knowledge check and consolidation. Orientation course within the Pr.O.M.E.T.E.U.S. project organized by the University of Brescia, funded by the PNR, Brescia 14/11/2023-10/01/2024.