



Curriculum Vitae Europass



Personal Information

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Citizenship Italian
Date of birth 6 April 1953
Gender Female

Occupation or Position Held

Full Professor at the University of Messina, Department of Mathematical and Computer Sciences, Physical Sciences, and Earth Science; Deputy Director of the Class of Physical, Mathematical and Natural Sciences at the Accademia Peloritana dei Pericolanti, Messina Italy. Research subjects: *Non-equilibrium thermodynamics with internal variables with applications to complex media; Nonlinear wave propagation in continuous media*

Work Address

University of Messina, Piazza S. Pugliatti 1, Messina, Italy.

Education

1975-1977 - Scholarship winner for Physics graduates.
1976 - Degree with honors in Physics at the University of Messina, with a thesis in statistical physics entitled *Viscosity and Partial Molar Volume in Electrolytic Solutions*.
1971-1976 - Undergraduate studies, degree course in Physics, University of Messina.
1959-1971 - Primary school, middle school and high school in Messina.

Work Experience

Since 2022 - Deputy Director of the Class of Physical, Mathematical and Natural Sciences at the Accademia Peloritana dei Pericolanti, Messina.
Since 2002 - Full Professor of Mathematical Physics at the University of Messina, Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences.
1992-2002 - Associate Professor of Mathematical Physics at the University of Messina, Department of Mathematics.
1983-1992 - Researcher in Mathematical Physics at the University of Messina, Department of Mathematics.
1981-1983 and 1992-1997 - Lecturer of Rational Mechanics at the University of Calabria, in the Civil Engineering and Mathematics degree programs.
1979-1981 - CNR (National Research Council) researcher in Mathematical Physics at the University of Messina, Institute of Mathematics, under the direction of Prof. Giovanni Crupi.

Teaching Activity	<p>1978-1979 and 1981-1983 - Teacher of Electronics and Technology at an industrial institute. 1977- Stage at the Montedison petrochemical company in Priolo (Syracuse, Italy) in the Information Systems Group</p>
	<p>1981-1983 and 1992-1997 - Teaching instructor in <i>Einstein's Relativistic Theories</i>, <i>Rational and Continuum Mechanics</i> within the Mathematics degree program, at the University of Messina, Institute of Mathematics. 1991-1997 and 1981-1983 - Teacher of <i>Rational Mechanics</i> at the University of Calabria, in the Civil Engineering and Mathematics degree programs.</p>
	<p>Within the Mathematics degree program at Messina University she taught <i>Field Theories</i> (2005-2023), <i>Foundations and History of Mathematical Thought</i> (2004-2023), <i>Advanced Mechanics</i> (2016-2018), <i>Relativistic Theories</i> (1994-2012), <i>Probability Calculus</i> (2008-2012), <i>Teaching and History of Physics</i> (2005-2012), <i>Thermodynamics</i> (2004-2011), <i>Tensor Calculus and Applications</i> (1992-1995), and she supervised some 70 undergraduate theses in Mathematics on Field Theories and Relativistic Theories.</p>
	<p>Within the Biology degree program at Messina University she taught <i>Statistics</i> (2008-2010), <i>Statistical Analysis and Modeling</i> (2006-2010), <i>Calculus Applied to the Environment</i> (2004-2008), <i>Fundamentals of Statistics Applied to Biology</i> (2002-2008), <i>Mathematical and Statistical Methods</i> (1994-2001).</p>
	<p>Within the Marine Biology and Ecology degree program, at Messina University she taught <i>Statistical Analysis and Modeling</i> (2002-2010), <i>Modeling</i> (2008-2010) and other subjects.</p>
	<p>At the Postgraduate School in Mathematics and Physics within the Faculty of Science at the University of Messina she taught several courses, including <i>Mathematics Laboratory</i> (2001-2007) and <i>Applied Statistics</i> (2006-2007).</p>
	<p>Within the PhD programs in Mathematics and Physics she taught several courses on <i>Continuum Mechanics</i> and <i>Non-equilibrium thermodynamics with applications to complex materials</i> (1998-2018). She was an organizer of supplementary <i>courses</i> of lectures (held by foreign professors) to her subjects of teaching <i>Tensor calculus and applications</i> (1993-1994), <i>Relativistic theories</i> (2000-2003), <i>Thermodynamics of continua</i> (2004, 2005, 2007).</p>
Research Interests	<p>Nonlinear wave propagation in continuous media; asymptotic waves and non-linear dissipative waves in rheological media with internal variables; non-equilibrium thermodynamics with internal variables with applications to the study of relaxation phenomena in rheological media, in magnetizable or/and polarizable media and in reacting electromagnetic fluid mixtures; non-conventional thermodynamic modeling of heterogeneous and anisotropic thermoelastic media, elasto-viscoelasto-porous media, ferroelastic and ferroelectric media, semiconductors and piezoelectric media with/without dislocations, superconductors of II type at high T_c; Eshelbian mechanics; objectivity and frame-indifference principles; different versions of continuum thermodynamics with applications to complex materials; geometrical models in non-equilibrium thermodynamics; non-equilibrium temperatures and heat equations in nano-systems; modeling, within non-equilibrium thermodynamics with internal variables, of superlattices, graded systems, thermal metamaterials with defects, nano-systems, superfluids; Galilean four-dimensional space-time with applications to fluids; mathematical physical formulations of models in meteorology; non-equilibrium temperature and heat transport in multiscale thermodynamics.</p>
Scientific Collaborators	<p>1979-1983 - Prof. Andrea Donato, University of Messina, Department of Mathematics. Since 1983 - Prof. Vincenzo Ciancio, University of Messina, Department of Mathematics. 1986-2005 - Prof. Gerrit Alfred Kluitenberg, University of Technology of Eindhoven, of Mathematics and Computing Science, Eindhoven, Netherland.</p>

	<p>1990-2017 - Prof. Bogdan Tadeusz Maruszewski, Poznań University of Technology, Institute of Applied Mechanics, Poznań, Poland.</p> <p>1993-2008 - Prof. Gérard Albert Maugin, Université Pierre et Marie Curie (ParisVI), Laboratoire de Modélisation en Mécanique, Paris, France.</p> <p>1999-2019 - Prof. Wolfgang Muschik, Berlin University of Technology, Institute of Theoretical Physics, Germany.</p> <p>2000-2012 - Prof. Mauro Francaviglia, Torino University, Department of Mathematics, Italy.</p> <p>2000-2010 - Prof. Adelina Georgescu, Academy of Romanian Scientists, Bucharest, Romania.</p> <p>2006-2016 - Prof. Serge Preston, Portland State University, Department of Mathematics and Statistics, Portland, OR, USA.</p> <p>Since 2008 - Prof. David Jou, Autonomous University of Barcelona, Department of Statistical Physics, Spain.</p> <p>Since 2012 - Prof. Lidia Palese and Dr. Arcangelo Labianca, Bari University, Department of Mathematics, Italy.</p> <p>2015-2025 - Prof. Petér Ván, Wigner Research Center for Physics, University of Technology and Economics of Budapest, Hungary.</p> <p>Since 2013 - Prof. Maria Stella Mongiovi, Palermo University, Italy.</p> <p>Since 2015 - Prof. Salvatore Magazù and Dr. Maria Teresa Caccamo, University of Messina, Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences.</p> <p>2017 - Prof. Miroslav Grmela, École Polytechnique Montréal, Canada.</p> <p>Since 2021 - Prof. Michal Pavelka, Charles University, Prague, Czech Republic.</p>
Publications	
Presentations	<p>More than 160 publications, many of which appeared in prestigious international journals, along with other contributions, preprints, posters, and lecture notes.</p>
Visiting professor	<p>She contributed as author or co-author to over 100 scientific presentations at national and international Conferences.</p> <p>She was visiting professor at:</p> <p><i>Eindhoven</i>, Netherlands, Eindhoven University of Technology, Department of Mathematics and Computing Science (1986-1991, 1999).</p> <p><i>Paris</i>, France, Pierre and Marie Curie University, Paris VI, Laboratory of Mechanical Modeling (1993, 1996, 2000, 2008).</p> <p><i>Poznań</i>, Poland, Poznań University of Technology, Institute of Applied Mechanics (1995, 1997, 1998, 2004).</p> <p><i>Berlin</i>, Germany, Berlin University of Technology, Institute of Theoretical Physics (2000-2008, 2011).</p> <p><i>Pitesti</i>, Romania, University of Pitesti, Department of Applied Mathematics (2006-2009).</p> <p><i>Barcelona</i>, Spain, Autonomous University of Barcelona, Department of Statistical Physics, since 2009.</p> <p><i>Bari</i>, Italy, University of Bari, Department of Mathematics, since 2012.</p> <p><i>Montréal</i>, École Polytechnique Montréal, Canada, since 2017.</p>
Invited visiting professors at Messina University	<p>She invited several visiting professors to conduct research and to give courses, lectures, and seminars at the doctoral school of the Department of Mathematics of the University of Messina: G. A. Kluitenberg (1988, 1993); G. Maugin (1991; 1992; 1994; 1999, 2005); J. Stefaniak, Poznań University of Technology, Poland (1995, 1997); J. Engelbrecht, Estonian Academy of Sciences, Tallinn, Estonia (2000, 2007); W. Muschik (1999-2006); B. T. Maruszewski (1990-2016); A. Georgescu (2000-2010); M. S. Mongiovi (2009, 2011); S. Preston (2006-2016); P. Ván (2015-2016); Miroslav Grmela (2018, 2019); D. Jou (2009-2025) and others.</p>
International Research Grants Awarded	<p>In the years 1986, 1987, 1988, 1990, 1991, she won financial support from the Dutch ZWO (Dutch Nederlandse Organisatie Voor Zuiver Wetenschappelijk Onderzoek) to study with G.A. Kluitenberg at Eindhoven University.</p> <p>In the years 1993 and 1996 she won financial support from the French CNRS to study with G. A. Maugin for a few months at Université Pierre et Marie Curie (Paris VI), where she</p>

Scientific Leader of International Bilateral Projects

also attended two advanced doctoral courses by Maugin on Solid Mechanics and Plasticity.

She was the scientific Italian leader of the following international bilateral projects:
Italy-Poland, title: "Non Conventional thermodynamical models of electromagnetic and heterogeneous media" (Polish leader Prof. B. T. Maruszewski 1992-1993);
Italy-France, title: "Non linear elasticity of heterogeneous and anisotropic media as a field theory" (French leader Prof. G.A. Maugin, 1994-1995);
Italy-France, title: "Fractures and Eshelbian forces in solids with defects" (French leader Prof. G.A. Maugin, 1995-1997);
Italy-Poland, title: "Thermodynamical processes in continua of different structure and thermomechanical and /or electromagnetic properties" (Polish leader Prof. B. Maruszewski, 1995-1999).

Ateneo of Messina-funded Research Projects (PRA)

At Messina University she was the scientific leader of the following PRA:
PRA 1999: *Non-conventional thermodynamical models for the study of mechanical and electromagnetic properties of heterogeneous and anisotropic solids*;
PRA 2000: *Non-conventional thermodynamical models for the study of mechanical and electromagnetic properties of heterogeneous and anisotropic solids, and Statistical methods applied to mathematical models for continuous media*;
PRA 2001: *Non-conventional thermodynamical models for physical processes in anisotropic continuous media with internal structure, and Statistical methods applied to mathematical models for continuous media*;
PRA 2002: *Non-conventional thermodynamical models for complex materials and Models of media with internal structure in the frame of statistical thermodynamics*;
PRA 2003, PRA 2005: *Thermodynamical models for complex materials*;
PRA 2006, PRA2007: *Non-conventional thermodynamical models for media with internal structure and applications*;
PRA 2008, PRA2009: *Thermodynamical models and numerical methods for the applied sciences*.

Participation in Research Projects

She participated in: two national projects with scientific leader Prof. M. Francaviglia: *Conservation Laws in Mechanics of Continua and Field Theories* (2002-2003), *Methods and Geometric Models in Mechanics of Continua* (2003-2004);
two national research projects with scientific leader Prof. S. Magazù: *Application of the Etna Volcanic Ash Fallout Monitoring Network to Mobility Management in the Etna Area* (2020-2023), *Use of Innovative Technologies, Materials and Models in the Aeronautical Field (AEROMAT)* (2019-2022);
in two national PRIN projects (Projects of Relevant National Interest, with local scientific leader Prof. V. Ciancio): *Non-Equilibrium Thermodynamics and Evolution Models in Continuous Media* (2003-2005) and *Non-Conventional Thermodynamical Models for Complex Materials* (2005-2007).

Supervision of PhD Students

As a member of the teaching board of the PhD programs in Mathematics (1997-2011), in Mathematics and Computer Science (2012-2015), and in Physics (2016-2018) at the University of Messina, she supervised eight doctoral students: Vincenzo Crupi (1999-2002), Francesco Rigoli (2000-2004), Maria Elena Malaspina (2001-2004), Davide Germanò (2003-2007), Maria Paola Mazzeo (2004-2008), Fabio Barrile (2005-2009), Lilla Bonanno (2007-2011), Alessio Famà (2017-2020).

National coordinator of a research group

For almost ten years, she was the national coordinator of the *SisTeNe-SIMAI* (Non-Equilibrium Thermodynamic Systems), an activity research group within SIMAI (Italian Society of Applied and Industrial Mathematics), of which she was a member for more than thirty years.

She was member of the scientific committee and organizer, also in collaboration with

**Organizer and Member
of Scientific Committee**

foreign scholars, primarily Profs. W. Muschik, B. T. Maruszewski and David Jou, of Study Days, Conferences, Minisymposia and Workshops (some selected):
Workshop on *Asymptotic methods for nonlinear propagation*, Messina, Italy, 15-17 October, 1986;
Study Days on *New Mathematical Concepts in Mechanics of Continua*, Messina, Italy, 12-14 November, 1999;
Minisymposium on *Developments and Applications in Continuum Theory of Mechanics and Thermodynamics*, in V Italian Conference on Applied and Industrial Mathematics, SIMAI 2000, Ischia, Italy, 12-17 June, 2000;
Minisymposium on *Different Applications of Recent Thermodynamical and Mechanical Theories*, in VI Italian Conf. on Applied and Industrial Mathematics, SIMAI 2004, Venezia, Italy, 20-24 September, 2004;
International Conference and Summerschool on *Thermal Theories of Continua*, THERMOCON'05, Messina, Italy, 25-30 September, 2005;
Minisymposium on *Non-Equilibrium Thermodynamics and its applications*, within VII Italian Conf. on Applied and Industrial Mathematics, SIMAI 2006, 21-27 May, Ragusa, Italy, 2006;
Minisymposium on *Mathematics and Reality*, within VII Italian Conference on Applied and Industrial Mathematics, SIMAI 2006, Ragusa, Italy, 21-27 May, 2006;
Minisymposium on *Applied Mathematics and Teaching*, within VII Italian Conference on Applied and Industrial Mathematics, SIMAI 2006, Ragusa, Italy, 21-27 May, 2006;
Study Days on *Deformation waves in solids*, Messina, Italy, 14-16 May, 2007;
Study Days on *Complex Fluid Flows*, Messina, Italy, 7-8 June, 2007;
Study Days on *Mesosopic Continuum Theory of Complex Media*, Messina, Italy, 26-27 June, 2007;
Minisymposium on *Recent Progress and applications in Thermodynamics*, within VIII Italian Conf. on Applied and Industrial Mathematics, SIMAI 2008, Roma, Italy, 15-19 May, 2008;
Study Days on *Recent ideas in Thermodynamics*, Messina, Italy, 8-9 October, 2008;
Study Days on *Non-Equilibrium Thermodynamics and applications*, Messina, Italy, 17-19 February, 2009;
Minisymposium, on *Recent Ideas in Non-Equilibrium Thermodynamics and Applications*, within X Italian Conference on Applied and Industrial Mathematics, SIMAI 2010, Cagliari, Italy. 21- 25 June, 2010;
Study Days on *Recent Ideas in thermodynamics*, Messina, Italy, 1-15 September 2010;
Study Days on *Continuum Mechanics of Unconventional Media*, Messina, 10-21 July, 2011.
Workshop on *Non-equilibrium Thermodynamics of Complex media*, Messina, Italy, 18 July, 2013.
Workshop on *International Study Days on Non-conventional Thermodynamical Models of Complex Media*, Messina, Italy, 27-28 October, 2014.
International Conference THERMOCON2016 Thermal Theories of Continua: Survey and Developments, Messina, Italy, 19- 22 April, 2016.
Two Minisymposia on *Mathematical Physical Models for Dynamic and Thermodynamic Processes*, within XIII Italian Conference on Applied and Industrial Mathematics, SIMAI 2016, Milan, Italy, 13- 16 September, 2016.
One Session Topic on *Non-equilibrium Thermodynamics of Dissipative Processes in Complex Media*, within JETC 2017, Joint European Thermodynamics Conference, Budapest, Hungary, 21-25 May, 2017.
International Workshop on *New Approaches to Study Complex Media*, Messina, Italy, 27-28 November, 2017;
Int. Workshop on *New Horizons in Teaching Science*, Messina, Italy, 18-19 June, 2018.
Colloquium on Non-Equilibrium Thermodynamics, Messina, Italy, 21 June, 2019.
One Session Topic on *Theories of Non-Equilibrium Thermodynamics*, within JETC 2019, Joint European Thermodynamics Conference, Barcelona, Spain, 21-24 Maggio 2019.
International Conference on Atmospheric monitoring, modeling and simulation, Messina, Italy, 2-3 December, 2019.

New Horizons in Experimental Investigation Techniques for Condensed Matter Systems, Messina, Italy, 11 March, 2021.

One Special Session Topic on *Non-equilibrium Thermodynamics with Applications to Complex Media*, within JETC 2021, Joint European Thermodynamics Conference, 14 -18 June, 2021, Prague, Czech Republic.

International Summer School on Nanostructures and Biomaterials: Assembly and Characterization Methods, 10-13 September, 2021, Lipari (Eolian Island), Italy.

Participation in Conferences

She participated in numerous international and national Conferences (more than 100), in some of which she was an invited speaker.

Other Activities

She is Founder and President of the Mathesis Association of Messina *Adelina Georgescu*, promoting the teaching and dissemination of mathematics, physics, and science.

She is a member of the Accademia Peloritana dei Pericolanti, in Messina, and Deputy Director of the Class of Physical, Mathematical and Natural Sciences of the same Academy. She is a member of the scientific society UMI (Italian Mathematical Union). She is a member of the GNFM (National Mathematics Group), Solid Mechanics section, research group of INDAM.

She has served, and continues to serve, on the scientific committees of numerous national and international conferences.

She is a member of editorial boards of international journals.

She has served, and continues to serve, as reviewer for several international journals, including SCOPUS- and ISI-indexed publications.

She was a guest editor of n. 4 special issues of *Atti Accademia Peloritana dei Pericolanti*.

She served as both president and member of committees for several Italian competitions in the field of Mathematical Physics.

Prof. Liliana Restuccia _____

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21 Febbraio 2026