

PERSONAL INFORMATION

Edoardo Bemporad

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Sex Male | Date of birth 25/12/1965 | Nationality Italian

POSITION

Full Professor Materials Science and Technology (IND-IND/22), c/o Engineering Department, University of Rome "Roma TRE"; h-index=20, citations >1200.

WORK EXPERIENCE

2005–Present

Full professor (confirmed)

University of Rome, "Roma Tre", Engineering Department
Via della Vasca Navale 79, 00146 Roma (Italy)
<http://ingegneria.uniroma3.it>

He is in charge of the research activities of the materials science group at the Roma TRE Electron Microscopy Laboratory (LIME), mainly devoted to advanced characterization of coatings and interfaces (www.lime.uniroma3.it). He is also the in chief coordinator of the whole LIME facility. At present, his interests lie in structured and nanostructured coatings, especially for wear resistance, corrosion resistance and high temperature oxidation. Moreover, he is nowadays coordinator of many public research projects (National and International) involving nanotechnologies, and responsible for several contracts and conventions between the department and private companies.

Business or sector Materials Science and Technology (ING-IND/22)

2002–Present

Scientific and Technic Expert on Applied Research proposal

UE, MiUR (Ministry for University and Research), MiSE (Ministry for the Economic Development), Several Italian Regions, Private Equity, other UE Countries, Rome (Italy)

From 2002 enrolled in the Register of Experts of the Ministry for the University and Research (MiUR) and from 2007 in the Register of Experts of the Ministry for the Economic Development (MiSE).

2002–Present

Court-appointed Expert or Expert Witness

Tribunale di Roma IX sez. civile dal 2002., ROME (Italia)

2002–2005

Assistant Professor

University of Rome, "Roma Tre"

Assistant Professor and Lecturer in Materials Science and Technology

1995–2002

Research Fellow

University of Rome "Roma Tre"

Research activities and lecturing in the field of Materials Science and Technology

1992–1995

Technologist

National Research Council (CNR), Rome (Italy)

Technical Office for the Direction of the Finalised Project: Special Materials for the Advanced

Technologies

EDUCATION AND TRAINING

- 1993–1995 **PhD in Engineering of Materials, Raw Materials e Metallurgy** PhD
 University of Rome "La Sapienza", Rome (Italy)
 "Development of processes for the production of ceramic powders for superconductors with a high critical temperature", 6th PhD Cycle
- 1991–1993 **Scholarship**
 National Research Council, Rome (Italy)
 Development of a production process of ceramic powders for superconductors in a controlled atmosphere, at the Department ICMMPM University of Rome "La Sapienza".
- 1990–1991 **Scholarship**
 Ansaldo Ricerche SpA, Rome (Italy)
 Development of a production process of ceramic powders for superconductors in a controlled atmosphere, at the Department ICMMPM University of Rome "La Sapienza".
- 1985–1990 **M.Sc. in Nuclear Engineering (Chemical-technological Orientation)** MSc
 University of Rome "La Sapienza", Rome (Italy)
- 1995–Present **Higher education courses**
- 3rd National School of Materials Science held at the CSM in Rome from 9/28 to 10/9 in 1992
 - The Enterprise Engineering Revolution, in 1994, held by the Technology Transfer, USA.
 - Business Process Reengineering, 1995, held by Systems Technology Institute, USA.
 - Radiation Curing: Ultraviolet Light & Electron Beam Technology, 1995, held by The Center for Professional Advancement, Amsterdam, Netherlands.
 - Technique of Scanning Electron Microscopy; 1998 Philips FEI Eindhoven, Netherlands.
 - Technique for microanalysis X-ray energy dispersive; 1998 Philips FEI Eindhoven, Netherlands
 - Use of Image Analysis applied to Materials Science; 1998 Soft Imaging System, Germany.
 - Impact of Electron and Scanning Probe Microscopy on Materials Research, 1998, International School of Electron Microscopy, Centro Ettore Majorana Erice, Sicily.
 - The Use of the Thermodynamic Calculation Code Thermocalc AB 1998, 998 Institute of Metallurgy, University of Stockholm, Sweden.
 - TEM specimen Preparation in Material Science with emphasis Tripod Polishing and Ion Milling Methods; 1999, Sociedad Venezolana de Microscopia Electronica, Caracas, Venezuela.
 - Advanced Coatings Technologies; 2000, International School on Advanced Material Science and Technology "G. Occhialini", Jesi (Ancona).
 - Calculation Tools for the optimization of materials and processes; 2000 Department of Chemistry IFM, University of Turin.
 - Sample preparation for Materials and Natural Science, University of Rome "Roma TRE", LIME Laboratory, 04/2002
 - Property Deconvolution from Indentation Measurements, by prof. A. Korsunsky (University of Oxford), Università of Rome "Roma Tre", LIME Laboratory, 04/2002
 - Advanced Mechanical Surface Testing, G. Favaro (CSM), University of Rome "Roma Tre", LIME Laboratory, 06/2002
 - FIB and DualBeam Technique for Materials Science Applications: Investigation and TEM Sample Preparation, L. Peto (FEI), University of Rome "Roma Tre", LIME Laboratory, 05/2003
 - Nanomaterials and Nanotechnology, 06/2003, UTS MAT Enea, Enea Casaccia Rome.

- New approaches in Materials and Manufacturing education, 07/2003, Granta Design Ltd., Vienna University of Technology, Vienna.
- Phase Transformations and Phase Diagrams: Study, Modelling and Applications, 2003, AIM - Center for Studies in Physical Metallurgy and Materials Science, Milan.
- Nanostructured Materials: processes, properties, applications, 2003, AIM - Center for Studies in Physical Metallurgy and Materials Science, Milan.
- High-precision 2D and 3D Metrology, Prof. D. Whitehouse et al. (Taylor Hobson) University of Rome "Roma Tre", LIME, 27/11/2003.
- Recent Advantages in Nano-Mechanical testing, University of Birmingham, UK, 12/2003.
- "Thin Film Nucleation, Growth, Microstructure Evolution" held by J. Greene (University of Illinois), ICMCTF '04 San Diego (CA), USA, 04/2010

PERSONAL SKILLS

Mother tongue(s) Italian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	B2	C1	C1
French	A2	A2	A1	A1	A1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
 Common European Framework of Reference for Languages

Organisational / managerial skills

Member of the National Committee for National Scientific Qualification for the University Professor position (art.16 of the law 30 December 2010, n.240), 2016-2018

Coordinator of the PhD in Mechanical and Industrial Engineering at the University of Rome "Roma Tre" (since 2008)

Representative of the Ministry of University and Research as an expert for the "Mirror Group" of the European Technology Platform on Steel (2006)

Representative of the Consortium Di.T.N.E. (National Energy Technology Cluster) for the permanent forum of national coordination on materials research

Member of the Scientific Council of the Department of Molecular Design of the National Research Council, CNR (since 2006)

Member of the Executive Council of the Interuniversity Consortium for Science and Technology of Materials, INSTM (since 2008)

Board member of the Rome Research Consortium, "Roma Ricerche" (2011-2014)

Board member of the consortium MATRIS (public-private consortium of the three Universities of Rome and the Center for Materials Development, 2007)

Member of the Management Board of the Platform A4MIt, Alliance for Materials Italy (from 2012)

Coordination and management of numerous national and international projects

Job-related skills

Author of more than 150 works, including more than 95 with surveyed bibliometric indicators; h-index = 20, 1000 citations.

The scientific research activities are currently focused on modeling, measurements and mechanical characterization of advanced interfaces and single and multi-layer nanostructured coatings, thick and thin, for either anti-wear and anti-corrosion applications at low and high operating temperatures, with particular attention on the development of advanced methods for microstructural characterization and modeling of the mechanical properties. Mentor and Co-Mentor of more than 45 works of master's thesis and 7 doctoral dissertations.

Scientific responsible and coordinator of several research projects with public and private funds (national and international), manages the activities of the Materials Science and Technology Group in the University laboratory of electronic microscopy, established by his contribution, where are installed a DualBeam, a SEM, a TEM and an atomic force microscope, a line of optical digital microscopy, an

interference profilometer and confocal instruments for advanced sample preparation, instrumentation for mechanical characterization such as macro-micro-nano durometers, tribometers, salt spray, and other minor tools for instrumental property of over 2.5 M€.

Peer Reviewer of international journals such as Surface & Coatings Technology, Vacuum, Journal of Materials Science, Thin Solid Films, Journal of Thermal Spray Technology, Journal of Materials Research.

Expert evaluator for numerous Italian regions (Tuscany, Sardinia, Calabria, Puglia, Piemonte, Lombardia, Lazio) on calls for projects of basic research, applied, industrial research and experimental development, where, together with the period spent as CNR Technologist, has also gained expertise on issues of coordination of research, research interface - production world and technology transfer.

Member since 2004 of the Register of Technical Consultants of the Civil Court of Rome for the following subjects: metallurgy and steel industry; industrial installations; chemistry of metals, alloys and minerals; industrial constructions, habitually active as a materials expert in the area of Failure Analysis and occasionally also in the area of Forensic Engineering.

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem-solving
Proficient user	Proficient user	Proficient user	Independent user	Proficient user

Digital skills - Self-assessment grid

Finite Element Modelling, Matlab, Labview, Computer Engineering Materials Selector, Image Analysis, Design of Experiment.

Systems on Microsoft Sharepoint 2010 and 365, Microsoft NT-based client-server architectures with multi-user; database and vertical applications also based on languages html / asp for developing original and innovative solutions in the field of "knowledge-based engineering".

MS Windows, MS Office, MS Sharepoint

ADDITIONAL INFORMATION

Publications

[http://www.stm.uniroma3.it/SitePages/Publication List.aspx](http://www.stm.uniroma3.it/SitePages/Publication%20List.aspx)

Teaching and Academic Responsibilities

Assignment by the Council of the Faculty of Mathematical, Physical and Natural Sciences of the University "Roma Tre" of the training module: "Scanning and Transmission electron microscopy of materials of environmental interest - SSD GEO / 06" for the AY 2003 2004 and 2005/2006.

Lecturer on the Master in "Surface Treatment for Industry", AY 2005/2007 on the issues of durability of nanostructured coatings

Lecturer at the 12th National School of "Materials Science" INSTM: "Nanostructures in development strategies", on issues related to nanostructured surfaces and coatings, 09/2006.

Responsible for the training contract on "Transformation and degradation processes of operating materials" between the University "Roma Tre", Mechanical Engineering Department and Center for Materials Development, 2005.

Member of the Scientific Council of the PhD in "Complex Industrial Systems (SICS)", since 03/2005.

Invited Professor at the University of Science and Technology of Lille (FR) for lectures and research collaboration with the Laboratory of Mechanics, Unit 8107 of the CNRS in the periods: 03/2004 - 04/2004; 03/2005 - 06/2005; 10/2006 - 11/2006

Invited lecturer "Comprehensive characterization of thin film coatings: microstructure, composition, mechanical and tribological properties"; invited by the Coordinator of the School of Metallurgy, Faculty of Engineering of the Central University of Venezuela, Caracas, 02/12/2004 .

Lecturer at 10th AIMAT-INSTM School: " Surface Treatment Engineering", on issues related to PVD production processes and advanced techniques of characterization, 10/2004.

Held the seminar "Visualization aids in coatings characterization, design and processing" invited by the Director Prof. Melle Claude Robin of the Department of "Mecanique & Comportement des Materiaux", Ecole des Mines de Douai (France), 03/2004.

Invited Professor, "Master of Conference" level, at the University of Science and Technology of Lille in order to give some lectures on topics related to the advanced characterisation for mechanical modeling of thin films for wear resistance applications and to participate on to the activities of the "damaging and surfaces group" Belonging to the Laboratory of Mechanics Which is an Unity 8107 of the CNRS (National Scientific Research Center). Invitation received in 2003, from the "Ministere de l'Education Nationale, Universite des Sciences et Technologies de Lille (Lille I)", 03-04/2004.

Member of the Commission of PhD in Chemical Engineering Environment and Security, University of Rome "La Sapienza", final exam XVI cycle, with DR 843 of 14/10/2003.

Member of the Commission of the International PhD of the Faculty of Engineering of the Central University of Venezuela, Caracas, 10/2003.

Member of the Commission of PhD in Materials Engineering, Raw Materials, Metallurgy and Environmental Protection, University of Rome "La Sapienza", final exam XVI cycle, with DR 844 of 14/10/2003.

Member of the Academic Board of the PhD in Mechanical and Industrial Engineering at the University "Roma Tre", 10/2003.

Lecturer at the 8th AIMAT School: "Smart Materials and Nanostructured Materials", on issues related to manufacturing techniques and applications of nanostructured coatings, 13-17 / 10/2003.

Held the seminar "Application of electron microscopy techniques in the field of coatings" invited by the Director prof. Roberto Roberti of the Department of Mechanical Engineering - University of Brescia, 09/2003.

Responsible of the Training contract on "Fundamentals of metallurgy alloys Fe-C and their microstructural characterization" between the University "Roma Tre", Mechanical and Industrial Engineering Department, and the Customs Department (Ministry of Economics and Finance), 2003.

Responsible and tutor of two contracts for Training activities for the professional position "Researcher expert in microscopy" The University of Rome, "Roma Tre", Mechanical and Industrial Engineering Department, and the Institute Superior for the Research on Advanced Materials (ISIRIM, TR), 2000, 2003.

Member of the Commission for the recruitment of the National Research Council Researcher, for the tertiary sector MI165 /1, 19/11/2002 by CNR TeMPE, call n.310.2.93.

Held a seminar on "Electron Microscopy and Microanalysis" at the Department of Electronic Engineering - University "Roma Tre", 03/1998.

Member of the board of the Mechanical and Industrial Engineering Department, University "Roma Tre", from 1997 to 2000.

Member Of the "Working Group for the Services of the University Network", University "Roma Tre", since July 1999.

Coordinator of the Project "Online Study Programme " for the A.Y.1998-1999, CCS in Mechanical Engineering, University "Roma Tre".

Designed and produced the multimedia lecture notes for the Science and Technology of Materials, online at the University "Roma Tre" web site, annually updated since 1997.

Head of the information system of the Electron Microscopy Laboratory, elected by the Management Committee, since 1997.

Hold two teaching positions assigned by the foundation Forinit, as a part of the National Programme "Innovative Advanced Materials" having as a subject the methods of characterization in materials science, 10/1994.

Other Academic and Institutional Responsibilities

Member for the National Research Council (CNR) in the Commission for the management of the Convention CNR-CSGI (Consortium Surfaces with large Interfaces), assigned by the CNR President since 12/2006)

Member of the Scientific Council of the Department of Molecular Design of the National Research Council (CNR) by the Board resolution from 31/05/06

Coordinator of the Management Committee of LIME, Interdepartmental Laboratory of Electron Microscopy, University of Rome, "Roma tre", since 07/2005

Research associate at the Institute for the Study of Nanostructured Materials, National Research Council (CNR), 2005-2008

Scientific responsible for the projects "Elcomat", "Trial "and" Strale" for the University of Rome "Roma Tre" inside the research Consortium "MATRIS"

Scientific responsible of the Operating Unit "Roma Tre" in Project B01/0315/P "Replacing of the galvanic processes in the automotive industry with processes with reduced environmental impact," PON (Project of National Interest) Local Business Development Programme

Scientific and Technical responsible for the research contract: "Technology of low observability in aviation: state of the art" between University "Roma Tre", and Alenia Aeronautica

Coordinator and project proposer: "ELaNSE Euro-Latinoamerican Network on Surface Engineering" involving five national partners and five foreign partners; inside the programs for encouragement of the internationalization of the university system, DM 5 August 2004 n. 262 - ART. 23

Head of the Operational Unit "Roma Tre" of the Interuniversity Consortium for Science and Technology of Materials (INSTM) in the EU Integrated Project: "NANOKER Structural Ceramic Nanocomposites for top-end Functional Applications"

Head of the Operational Unit "Roma Tre" of the Interuniversity Consortium for Science and Technology of Materials (INSTM) in Strategic Project I. 449/97 "Composite Materials for Structural Applications of Industrial Interest"

Head of the Operational Unit "Roma Tre" of the Interuniversity Consortium for Science and Technology of Materials (INSTM) in Strategic Project of FISR "Molecular Modelling"

ICT Expert recognized in 1995 as "Microsoft Solution Provider" certificated by Microsoft Italy, for the continuous activity of development of original and innovative solutions in the field of "knowledge-based engineering", with particular reference to the field of materials technology.

Forensic Engineering Skills

Mainly in Italian Courts:

CTP, caso di omicidio e tentata strage, difesa dell'imputato su aspetti relative ai materiali e analisi video di sorveglianza.

CTP, Trenitalia vs. fornitore, fornitura guarnizioni freno non conforme

Coadiutore CTP, contenzioso Mataloni vs. fornitore, cedimento braccio gru

CTP, contenzioso Alitalia vs. Yale, cedimento verricello di sollevamento per manutenzione motore aeromobile

CTU, contenzioso fra privati, origini incendio doloso indagine dei toolmark

Coadiutore CTU, contenzioso Opel vs private, dinamica incidente

Coadiutore CTU, contenzioso Laghi vs fornitore, per lesioni a seguito cedimento cestello operatore di carrogru

CTP, caso Unabomber, difesa dell'imputato, analisi dei toolmark

CTU, contenzioso fra privati, danni motore autoveicolo per errata manutenzione

CTU, Cincotti vs. fornitore, errata installazione pannellature

CTU, ALLCO vs fornitore, errato dimensionamento impianto abbattimento fumi

Coadiutore CTP, contenzioso Fabriano Security vs fornitore, fornitura fili di sicurezza non conforme

Coadiutore CTP, contenzioso Citroen vs. privato, vizio occulto

Coadiutore CTP, contenzioso Mercedes vs. privato, vizio occulto

Coadiutore CTP, contenzioso ENEL vs. privato, danni conseguenti a cedimento di pozzo geotermico zona Larderello

CTU, Contenzioso Valentino srl vs. privato, per lesioni a seguito incidente causati da errata manutenzione

CTU, Contenzioso Samoto vs privato, vizio occulto

CTP, Contenzioso Vetriplast -vs. Hycor, brevetto per vetri impiegate in analisi cliniche