

ANTONIO RINALDI

Year of Birth: 1975

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EDUCATION

Ph.D. Mechanical Engineering	Arizona State University, Tempe, AZ, US, 2004
Graduate Certificate Applied Statistics And Six Sigma	Arizona State University, Tempe, AZ, US, 2004
M.S. Mechanical Engineering	Arizona State University, Tempe, AZ, US, 2002
LAUREA summa cum laude (5 years) Mechanical Eng.	University "La Sapienza", Rome, Italy, 2000

ACADEMIC AND RESEARCH POSITIONS

RESEARCH PROFESSOR , Univ. L'Aquila ITALY 2012-present
Founder and director of the "Functional Multiscale Meta-materials and Smart Systems Lab" (LAMSI) at the International Research Center of Mathematics and Mechanics of Complex Systems (MEMOCS) of University of L'Aquila in Cisterna di Latina (LT) - <http://memocs.univaq.it/>

SCIENTIST, ENEA , Rome, ITALY 2011-present
Researcher on innovative materials for energy and health applications, in charge of the mechanics testing lab (15 machines for creep, fracture, thermal fatigue, etc.) and the SEM lab (LEO 35, field emission). Current projects focus on advanced characterization of nuclear materials and composite structural Al-based foams, as well as damage mechanics, nanobiomaterials, energy harvesting and spintronics.

ADJUNCT PROFESSOR , Univ. Tor Vergata Roma, ITALY 2009-2011
In charge of the 10 CFU Course "Tecnologie dei Materiali e Chimica Applicata" for II year students in civil engineering and architecture

ADJUNCT PROFESSOR , Univ. Tor Vergata Roma, ITALY 2007-2008
In charge of the 48 CU Course "Tecnologie dei Materiali e Chimica Applicata 2" (cements and concrete) for II year undergraduate students in civil engineering and architecture

RESEARCHER, ISPESL, ITALY 2007-2010
Research consultant at the "Department of Technology for Safety" (DTS) concerning the application of Types A,B,C European standards in the area of Machinery and Pressure Equipment Devices (e.g. Machine Directive, ISO 954-1, ISO 13849), technological innovation, nanotechnologies and risks associated with nanotechnologies.

RESEARCHER, Univ. Tor Vergata Roma, ITALY 2006-2010

- Nanomechanics and nanobiotechnology (group leader).
- Tissue engineering: scaffolds for stem cells differentiation and tissue implantation (group leader).
- Numerical modeling (with finite elements) of cell and (bio)mechanical systems.
- Photovoltaics and fuel cells (SOFC, PEM, MFC).
- In charge of the SEM and mechanical testing labs (group leader).
- Writing research proposals to national (e.g. MATTM) and European Agencies (e.g. VII framework program).

RESEARCH PROFESSOR, Arizona State University

2005 – 2006

- Research in nanotechnologies, e.g.
 1. synthesis, testing and characterization of metal nanowires and nanotubes. Innovative strategy for nanoscale mechanical testing (indentation, compression, bending, shearing, fatigue) for the development of metrological techniques suitable for that scale, with emphasis on addressing extrinsic effects.
 2. testing and characterization of nanocrystalline Ni (commercial grade) to evaluate plastic, fatigue, and creep behaviors. The emphasis was on environmental and sample-size dependent effects.
- Simulations of indentation tests via finite element analysis.
- Estimate of stress intensity factor in fracture mechanics by finite elements analysis and first order theory.
- Research on Statistical Damage Mechanics via molecular dynamics and FEM.
- Lecturer for senior undergraduate students on structural mechanics and strength of materials.
- Lab Trainer for graduate students on both conventional and nanoscale experimental techniques.

RESEARCH FUNDINGS

1. Co-author of two 3-year research proposals on the production of Biohydrogen in urban areas from microbial electrochemical devices funded by the Ministry of Environment with 450 k€ and by the POR for the same amount in 2010 and also by the consortium AGER (a share ~750k€ to Univ. Tor Vergata).
2. Recipient of the Italian Young Investigation Award 2010 (FIRB) for the study of the “Ultra High Efficiency ZnO Nanogenerators for Wireless Sensors and MEMS” (260k€ from the Ministry of Research and Education).

SELECTED SCIENTIFIC ACTIVITIES

CO-EDITED JOURNAL ISSUES & EDITORIAL ACTIVITIES

- Guest editor of Int. J. Plasticity (Vol. 23, 2007) for the special issue dedicated to Dusan Krajcinovic.
- Guest editor of Int. J. Damage Mech. (Vol. 18, 2009) for the special issue dedicated to Dusan Krajcinovic.
- Sections Editor (8 Chapters) for "Handbook of Damage Mechanics", Ed. Voyadjis G., Springer, in preparation (due spring 2014)

INVITED LECTURES AND SEMINARS (EXCERPTS)

- Lecture "Mechanics of piezoelectric quasi-1D nanostructures", at workshop "Piezoelectric Quasi-1d Nanodevices", Accademia Nazionale dei Lincei, Centro Interdisciplinare Beniamino Segre, Rome, IT, 28 Sept. 2012.
- Lectures on “SEM principles and applications” within the “International Summer School in Conservation of Historical, Monumental and Archaeological Sites”, Univ. Rome Tor Vergata, 2009, 2010, 2011, 2012.
- Four lectures on EU Seventh Framework Research Program at SIOI, Naples, in 2008 and 2009.
- Six lectures “Statistical Damage Mechanics” in the short course “Damage Mechanics and Micromechanics of Localized Fracture Phenomena in Inelastic Solids”, held at CISM, Udine, IT, 7-11 July 2008.
- Seminar on “Scaffold for Cardiac Tissue Engineering”, Univ. of Vigo, Spain, 2006.

VISITED RESEARCH INSTITUTIONS (EXCERPTS)

- Visiting scientist for 6 months at ORNL, Knoxville, TN, US (upcoming in Spring 2013)
- Visiting scientist at CNR-IFN, Rome, IT, since Fall 2012.
- Affiliated to the Center for Mathematics and Mechanics of Complex Systems at Cisterna (LT) since 2010.
- Visiting scientist for 1 month at INRS, Varennes (Montreal), Canada, Nov. 2009.
- Visiting scientist for 6 months at ENEA – Casaccia site (Rome), Italy, Sept. 2008.
- Visiting scientist for 1 month at ASU, Tempe, AZ, US, Dec. 2006.

SOCIETIES

- Active member of Rome Professional Order of Engineers (Ordine degli Ingegneri di Roma) since 2000.
- MRS member, since 2006.
- ASSOINGE, Association of Italian Engineers Abroad, founding member, The Netherlands, 2010.

REVIEWER, ORGANIZER, COMMITTEE CHAIR, SOCIETIES

- Session Chairman, 1st International Conference of Damage Mechanics, ICDM 2012, Belgrade, Serbia, 24-27 Jun 2012.
- Co-Chair and organizer of session “Fracture, damage and fatigue of materials” of 37th Solid Mechanics Conference SolMec 2010, Warsaw, Poland, Warsaw, Poland September 6-10, 2010.
- Organizer in chief of the conference “Ancoraggi: sicurezza in situazioni di rischio e nei luoghi di lavoro” under the ISPESL patronage, held at the Engineering School of U.of Rome Tor Vergata on 29 May 2009.
- Member of the editorial board of “RECENT PATENTS ON MECHANICAL ENGINEERING”, a Bentham Science journal since 2008.
- Reviewer for peer-reviewed scientific journals such as AFM, AM, IJP, IJDM, TSF, TAM, CEJ, JNPR, JPS, CMAT, IJF, etc.
- Session chair at the following international conferences: MECMAT 2003 & ICF 11 in 2005.
- Reviewer and judge for the student research conferences REAS 04, REAS 05 and MGE 05 held at ASU.

CONSULTING

- Applied Statistics and Six-Sigma
- Mechanical Design and Characterization (Macro, Micro, Nano)
- Materials Characterization and Microscopy (Optical, Electron, and Atomic Force)