

CURRICULUM VITAE

Personal information

Family name, First name: Raimondi, Manuela Teresa

Date and place of birth: August 31st 1968, Milano, Italy

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BRIEF PROFILE

My career developed at Politecnico di Milano, where I am currently a Full Professor of Bioengineering at the Department of Chemistry, Materials and Chemical Engineering "G. Natta". I teach the course "Technologies for regenerative medicine" at the MS program in Biomedical Engineering. I am the Principal Investigator of four active research projects in Industrial Bioengineering: three ERC-funded projects (one Consolidator and two Proof-of-Concept) and a project funded by the Italian Ministry of University and Research.

In 2003-2008 I have activated and directed a Biomechanics lab inside the hospital IRCCS Galeazzi Orthopaedic Institute in Milano. I trained and supervised three bioengineers that applied integrated computational/experimental methods to study the biomechanics of orthopaedic devices, primarily hip and knee prostheses, spinal fixators, trauma fixators and maxillo-facial implants.

In 2009 I established the group of Mechanobiology at Politecnico di Milano. I have activated and I direct two labs (the "[Mechanobiology lab](#)" and the "[Live Cell Imaging lab](#)") in which I based my team. We develop frontier tools for bioengineering research, such as nanoengineered stem cell niches and miniaturised windows for intravital imaging. Our long-term goal is to develop the potential of stem cells as tools in regenerative medicine, cell modelling and drug discovery.

EDUCATION

- 2000 Ph.D. in Bioengineering, School of Engineering, Dept. of Bioengineering, Politecnico di Milano, Italy. Title of the thesis "The biomechanical reliability of artificial hip joints". Mentor: Prof. Riccardo Pietrabissa.
- 1994 Professional Qualification in Industrial Engineering (Esame di Stato), and enrolment in the Ordine degli Ingegneri della Provincia di Milano, Italy.
- 1993 5-year "Laurea" degree in Mechanical Engineering, School of Engineering, Dept. of Bioengineering, Politecnico di Milano, Italy. Track: Bioengineering.
- 1991 Diplôme Supérieur de Langue Française, Centre Culturel Français, Milan.
- 1980-1981 One middle-school year attended at the Birch Wathen School, New York City, NY, USA, due to a family move.

SCIENTIFIC APPOINTMENTS

Institutional appointments at Politecnico di Milano

- 2015-2020 Referent person for the framework agreement with IRCCS Mario Negri Institute for Pharmacological Research, Milano, Italy.
- 2014-now Head of the Managing Board, inter-departmental Laboratory for Live Cell Imaging (LuCID lab) (<https://www.polimi.it/en/scientific-research/research-at-the-politecnico/laboratories/interdepartmental-laboratories/lucid-lab/>). To activate this lab, I was awarded with an intramural grant (€140,000) to co-fund the acquisition of a confocal microscope equipped with a cell culture incubator. This lab serves as the institutional bio-imaging facility by 20% and it's used on my ERC projects by 80%.
- 2010-now Founder and Director, Mechanobiology lab, Dept. of Chemistry, Materials and Chemical Engineering "G. Natta" (<http://www.nichoid.polimi.it/mechanobiologylab/>). I activated a cell culture facility (now covering 100 m²) and trained the personnel. Here, I develop advanced models of cell mechanobiology, coupling miniaturised cell/tissue bioreactors and cell culture substrates nanoengineered by two-photon laser polymerisation (2PP), with multiphysics/multiscale computational models of cell response to mechanical and mass transport field variables. My research recently moved from *in vitro* to *in vivo* by development of a 2PP-fabricated miniaturised window for intravital imaging.
- 2003-2008 Founder and Director, external research unit of Politecnico di Milano, located inside the research hospital IRCCS Galeazzi Orthopaedic Institute, Milano (<https://galeazzi.grupposandonato.it/laboratorio-di-meccanica-delle-strutture-biologiche.html>). Here, I set-up a biomechanics lab (50 m²) and supervised a group of three bioengineers working on the biomechanics of hip and knee prostheses, spinal fixation, trauma fixation and maxillo-facial implants. In this hospital, I had access to an advanced biological lab, where I acquired my knowledge in cell culture and analysis, especially high-resolution fluorescence microscopy.

Management of past and ongoing grants

- 2015-2020 Principal Investigator, ERC Consolidator project NICHOID: "Mechanobiology of nuclear import of transcription factors modelled within a bioengineered stem cell niche" (€1,903,00, 60 months). Awarded by the European Research Council. Call: ERC-2014-CoG. Panel PE8_14 (Industrial Bioengineering). Grant agreement n. 646990. <http://www.nichoid.polimi.it/erc-cog-nichoid/>
- 2018-2019 Principal Investigator, ERC Proof-of-Concept project MOAB: "Miniaturised optically accessible bioreactor for drug discovery and biological research" (€150,000, 18 months). Awarded by the European Research Council. Call: ERC-2018-PoC_30-04-2018. Panel PE8_14 (Industrial Bioengineering). Grant agreement n. 825159. <http://www.nichoid.polimi.it/erc-poc-moab/>
- 2017-2018 Principal Investigator, ERC Proof-of-Concept project NICHOIDs: "Nichoid: nanoengineered substrate for stem cell expansion" (€150,000, 18 months). Awarded by the European Research Council. Call: ERC-2016-PoC_04-10-2016. Panel PE8_14 (Industrial Bioengineering). Grant agreement n. 754467. <http://www.nichoid.polimi.it/erc-poc-nichoids/>

- 2018-2020 Principal Investigator, project BEYOND: "Imaging window nanofabricated by direct laser writing for intravital assessment of biomaterials" (€136,800, 36 months). Awarded by the Italian Ministry of University and Research. Call: MIUR-FARE 2016. Panel PE8_13 (Industrial bioengineering). <http://www.nichoid.polimi.it/beyond/>
- 2014-2016 Principal Investigator, award "LuCId lab" (€140,000, 36 months) to set up an inter-departmental new laboratory for confocal cell imaging, granted by Politecnico di Milano, Italy. Call: Laboratori Interdipartimentali di Ateneo 2013.
- 2012 Principal Investigator, award "Mechanobiology lab" (€35,000) for instrumentation, granted by the Banca del Monte di Lombardia Foundation, Pavia, Italy. Open call.
- 2011-2012 Principal Investigator of Unit, award "Computational models for heterogeneous media. Application to micro scale analysis of tissue-engineered constructs" granted by Politecnico di Milano, Italy. Call: 5x1000 Young Investigator award 2010. Project PI: P. Zunino, budget €60,000, 24 months; Unit PI: MT Raimondi, budget €20,000.
- 2011-2012 Principal Investigator of Unit, award "3D Micro structuring and functionalisation of polymeric materials for scaffolds in regenerative medicine" granted by the Cariplo Foundation, Milano. Call 2010 "Potenziare la valorizzazione della conoscenza attraverso il sostegno di progetti di ricerca su tecnologie emergenti con forti ricadute applicative. Ricerca scientifica e tecnologica sui materiali avanzati". Project PI: R. Osellame, budget €237,000, 24 months; Unit PI: MT Raimondi, budget €2,000.
- 2005-2006 Principal Investigator, award "Design of micro-structured scaffolds for tissue regeneration in advanced culture systems" (€204,000, 24 months) granted by the Cariplo Foundation, Milano, Italy. Call 2004 "Promuovere la valorizzazione della conoscenza attraverso il sostegno di progetti di ricerca applicata su tecnologie abilitanti".

Honours and Awards

- 2018 Principal Investigator, Travel award (€2,500) granted by the Rocca Foundation, MIT-Italy program, to support the Rocca visiting student fellowship (€8,000) awarded to my PhD student Francesca Donnalaja for her project "Contribution of nuclear pore complexes (NPC) as stretch-activated channels to the regulation of gene expression".
- 2017 Winner, start-up competition, project: "Miniaturized, Optically Accessible Bioreactor (MOAB)", Funded by Politecnico di Milano, PoliHub and Deloitte. Call: Switch to Product (S2P 2017).
- 2007 Principal Investigator, Travel award "Mathematical modelling of cell-based diagnostic devices" (€8,000) granted by the Rocca Foundation, MIT-Italy program.
- 2006 Principal Investigator, Travel award "Tissue Engineering in human cartilage bioreactors" (€8,000), granted by the Rocca Foundation, MIT-Italy program.
- 2000-2001 Principal Investigator, award "In vitro development of cartilage engineered on synthetic scaffolds using human cells" (€6,400), granted by Politecnico di Milano. Call: Young Investigator award 1999.
- 1997 Winner, three-year Doctoral Fellowship granted by the Italian Ministry of University and Research.

Research contracts managed with IRCCS Galeazzi Orthopaedic Institute

- 2008-2010 Co-Holder, contract "Use of experimental equipment to conduct research in the field of implant devices for orthopaedic surgery, trauma surgery, odontology, maxillo-facial surgery, and spinal neurosurgery" (three contracts, total value €260,000).
- 2006-2007 Holder, contract "Validation of a protocol for molecular analysis by image diagnostics and its application to the evaluation of the efficacy of the spinal fixator Dynesys® Dynamic Stabilization System" (€35,000).
- 2006-2007 Holder, contract "Design specification for the development of a prototype of self-locking plaque for the treatment of fractures of the distal end of the arm" (€10,000).
- 2006-2007 Holder, contract "Modelling evaluation of the biomechanical effect of the configurations all-on-four and Toronto-bridge in the rehabilitation of a totally edentulous mandible" (€17,000).

Scientific appointments at IRCCS Galeazzi Orthopaedic Institute

- 2006-2010 Member, Scientific Advisory Board
- 2009 Coordinator, "Ricerca Corrente" research line n. 3: "Study of movement, analysis, biometrics, functional re-education".
- 2006-2008 Principal Investigator, "Ricerca Corrente" projects n.: 2.02 "Design of microstructured scaffolds for tissue regeneration in advanced culture systems", 2.03 "Design and development of a new dynamic spinal stabilizer", and 6.06 "Development of advanced methods for the design and evaluation of devices for spinal surgery".

Peer review of grant applications

- 2016-2017 Invited Expert, European Research Council (ERC). Calls: ERC-CoG-2016, ERC-AdG-2017, ERC-2018-AdG.
- 2010-2011 External Grant Reviewer, Fundação para a Ciência e a Tecnologia-Portugal (FCT - Portuguese Science and Technology Foundation), projects in the area "Biomedical Engineering".
- 2009 External Referee, Technologiestichting (STW - Dutch technology Foundation), Vici Programme: Innovation Research Incentive Scheme.
- 2005 Grant Evaluator, American National Science Foundation (NSF), USA.
- 2003 Mid-term Reviewer, European Commission, V Frame Program, "Research related to persons with disabilities", project RISE, Vienna, Austria .
- 2000 Expert Evaluator, V Frame Program, "Research related to persons with disabilities", European Commission, Brussels, Belgium.

National scientific Committees

- 2016 Member under contract, Ministry Committee for the selection of three positions of Permanent Researcher of III professional level, Consiglio Nazionale delle Ricerche (CNR), Rome. Call "368.2 RIC Strategic area biomolecules and biomaterials for health".
- 2014 Reviewer under contract, national Verification of the Quality of Research (VQR 2004-2010), Italian Ministry of University and Research.

Membership to scientific Societies

- 2015-now European Society for Artificial Organs (ESAO)
2012-now European Society of Biomechanics (ESB)
2008-now Tissue Engineering and Regenerative Medicine International Society (TERMIS)

Appointments as Supervisor of Post-Doctoral fellows at Politecnico di Milano

- 2017-2018 Dr Tommaso Zandrini, project “NICHOLDS-Nanofabrication”. Position supported by my grant ERC-PoC-2016.
2016-2018 Dr Barbara Bonandrini, project “NICHOLID-Cell biology”. Position supported by my grant ERC-CoG-2014.
2015-2017 Dr Emanuela Jacchetti, project “NICHOLID-Biophysics”. Position supported by my grant ERC-CoG-2014.
2015-2016 Dr Alberto Garcia Gonzalez, project “NICHOLID-Computational mechanics”. Position supported by my grant ERC-CoG-2014.
2015-2017 Dr Marta Tunesi, project “NICHOLID-Materials technology”. Position supported by my grant ERC-CoG-2014.
2015-2016 Dr Michele M. Nava, project “NICHOLID-Bioengineering”. Position supported by my grant ERC-CoG-2014.
2014 Dr Michele M. Nava, project “Use of confocal imaging techniques in Bioengineering”. Position supported by intramural resources.
2011-2012 Dr Matteo Laganà, project “Design of instrumented scaffolds for tissue regeneration”. Position supported by my award Cariplo 2010.
2007 Dr Stefania Vaga, project "Validation of a protocol of molecular analysis for imaging diagnostics". Position supported by one of my research contracts with IRCCS Galeazzi.
2005 Dr Alfonso Fantigrossi (6 months) project "Computational methods for the biomechanical evaluation of devices for mini-invasive neurosurgery". Position supported by the company Medtronic Italy S.r.l.
2005 Dr Arianna Colombini (6 months), project "Computational methods for the biomechanical evaluation of devices for mini-invasive neurosurgery". Position supported by the company Medtronic Italy S.r.l.

Supervision of Visiting Professors

- 2017-2018 Prof Øyvind Halaas, Full Professor, Norwegian University of Science and Technology (NTNU), Trondheim, Norway. 12-months stay. Project: Lymph node-on-a-chip.

ACADEMIC APPOINTMENTS

Academic positions

- 2018-now Full Professor in Bioengineering, Scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), School of Engineering, Dept. of Chemistry, Materials and Chemical Engineering "G. Natta", Politecnico di Milano.
- 2015-2018 Associate Professor in Bioengineering, Scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), School of Engineering, Dept. of Chemistry, Materials and Chemical Engineering "G. Natta", Politecnico di Milano.
- 2005-2014 Assistant Professor in Bioengineering, Scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), School of Engineering, Dept. of Chemistry, Materials and Chemical Engineering "G. Natta", Politecnico di Milano, Italy.
- 2000-2004 Post-doctoral fellow, School of Engineering, Dept. of Bioengineering, Politecnico di Milano, Italy. Scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering).
- 1997-1999 Ph.D. student, School of Engineering, Dept. of Bioengineering, Politecnico di Milano, Italy.

Course lecturing at the School of Engineering, Politecnico di Milano

Course lecturing in Philosophy Doctorate programs

- 2015 Lecturer, course "Mechanobiology", scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), 2 credits, Inter-departmental Ph.D. program in Bioengineering (in English)
- 2009 Co-Lecturer, course "Bioreactors for Regenerative Medicine", scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), 2 credits, Ph.D. program in Bioengineering (in English)

Course lecturing in Master of Science (MS) programs

- 2015-now Lecturer, course "Technologies for Regenerative Medicine", scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), 10 credits, Master of Science program in Biomedical Engineering (In English).
- 2009-2014 Lecturer, course "Biomimetics and Tissue Engineering [2]", scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), 5 credits, Master of Science program in Biomedical Engineering
- 2007-2008 Lecturer, course "Tissue engineering", scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), 5 Credits, Master of Science program in Biomedical Engineering
- 2006-2007 Lecturer on contract, course "Reconstructive Engineering in Orthopaedics", scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), Master of Science program in Engineering in Surgery
- 2003, 2006 Lecturer on contract, course "Technological Evaluation of Prostheses and Implantable Devices", scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), Master of Science program in Engineering in Surgery
- 2002 Didactic collaborator on contract, course "Technologies for Prostheses and Artificial Organs", 10 Credits, Scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), Master of Science program in Biomedical Engineering

- 2001-2003 Didactic collaborator on contract, course "Biomaterials Technology", 10 Credits, Scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), Master of Science program in Biomedical Engineering
- 2001-2004 Didactic collaborator on contract, course "Artificial organs and Prostheses", 10 Credits, Scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), Master of Science program in Biomedical Engineering

Course lecturing in Degree programs

- 2009 Lecturer, course "Design (Biomechanics and Biomachines)", 5 Credits, Scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), Degree program in Biomedical Engineering
- 1998 Didactic collaborator on contract, course "Biomechanics", scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), Degree program in Biomedical Engineering

Course lecturing at the School of Medicine and Surgery, Università degli Studi di Milano

- 2008-2010 Lecturer on contract, courses "Bioengineering", 2 credits, and "Biomaterials Technology", 1 credit, scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), Master of Science program in Biomechanics in Arthropodology

Institutional academic appointments

- 2012-2014 Vice-Coordinator, inter-departmental Ph.D. program in Bioengineering, School of Engineering, Politecnico di Milano, Italy (currently member of the Faculty board)
- 2008-2010 Board of the School, Master of Science program in Biomechanics in Arthropodology, School of Medicine and Surgery, Università degli Studi di Milano, Italy
- 2006-2007 Didactic Coordinator, area Orthopaedics, Master of Science in Engineering in Surgery, School of Engineering, Politecnico di Milano, Italy
- 2002-now Scholar of the discipline "Artificial Organs and Prostheses", Scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering), School of Engineering, Politecnico di Milano, Italy

Appointments in National academic Committees

- 2017 Member, Ministry Committee for the selection of one position of Assistant Professor of type RTDa. Call sector: 09/G2 (Bioengineering), Scientific disciplinary sector: ING-IND/34 (Industrial Bioengineering). Call: 1_RTDA_2017_03, Dept of Chemical, Materials and Production Engineering, Federico II University, Naples, Italy
- 2008-2010 Board member, Italian National Group of Bioengineering (GNB)

Appointments as Committee member in Ph.D. dissertations

- 2017 Member of Dissertation Commission, Patrícia Moura Rosa, project "IMMUNITY-ON-A-CHIP Microfluidic Devices for Immunoengineering", Supervisor: Prof. Øyvind Halaas, Ph.D. program in Medical Technology, Norwegian University of Science and Technology (NTNU), Trondheim, Norway
- 2017 Mini viva assessor, Sara Silvani, project "In Vitro 3D Co culture System to Study the Toxicity of Airborne Microparticles", Supervisor: Dr. Cécile M. Perrault, Ph.D. program in Life and Biomolecular Science, Affiliated Research Center: IRCCS Mario

Negri Institute for Pharmacological Research, The Open University, Milton Keynes, UK

- 2015 Member of Dissertation Commission, Barbara Bonandrini, project “Generation of a bioartificial kidney by tissue engineering technologies”, Supervisor: Prof. Andrea Remuzzi, Ph.D. program in Pharmacological Sciences, Affiliated Research Center: IRCCS Mario Negri Institute for Pharmacological Research, The Open University, Milton Keynes, UK
- 2012 Mini viva assessor, Marco Franzoni, project “The role of shear stress in arteriovenous fistula maturation: development of a cone and plate device to investigate the endothelial cell response to controlled mechanical stimulation”, Supervisor: Prof. Andrea Remuzzi, Ph.D. program in Bioengineering, Affiliated Research Center: IRCCS Mario Negri Institute for Pharmacological Research, The Open University, Milton Keynes, UK

Appointments as Supervisor of Ph.D. students

- 2017-2019 Claudio Conci. Ph.D. program in Bioengineering, XXXIII cycle. Project “Imaging window nanofabricated by direct laser writing for intravital assessment of biomaterials.” Fellowship funded by my MIUR-FARE 2016 grant BEYOND.
- 2017-2019 Valentina Parodi. Inter-doctoral Ph.D. program in Bioengineering-Physics, XXXIII cycle. Project BIOMULTIPHOTON: “Multiphoton and non-linear microscopy applied to frontier physiopathology research in cell biology”. Intramural fellowship funded by the Italian Ministry of University and Research.
- 2017-2019 Francesca Donnalaja. Ph.D. program in Bioengineering, XXXIII cycle. Project “Modelling the molecular mechanics of the nuclear pore complex”. Fellowship funded by my ERC-CoG-2014 grant NICHOID.
- 2016-2018 Lucia Boeri. Ph.D. program in Bioengineering, XXXII cycle. Project “Design, development and numerical prediction of a fluorescent transcription factor to evaluate its nuclear import flow in living mesenchymal stem cells”. Six months spent as visiting student at Prof Alessandro Negro, Protein Crystallography and Protein Engineering lab, Dept. of Biomedical Sciences, Padua University, Padua, Italy. Fellowship funded by my ERC-CoG-2014 grant NICHOID.
- 2015-2017 Dr Alessandro Marturano. Ph.D. program in Bioengineering, XXXI cycle. Project "Design and development of novel in vitro tools for cancer tissue engineering". Two years spent as visiting student at Prof Gordana Vunjak-Novakovic, Stem Cells and Tissue Engineering Lab, Columbia University, New York City, USA. Fellowship funded by 2/3 by Politecnico di Milano Foundation and by 1/3 by my ERC-CoG-2014 grant NICHOID.
- 2012-2014 Dr Michele M. Nava. European Ph.D. program in Structural, Seismic and Geotechnical Engineering, XXVII cycle. Project "The control of multipotency and differentiation of stem cells in three-dimensional scaffolds structurally interacting at the cell scale". Six months spent as visiting student at Prof Ivan Martin, Tissue Engineering Lab, University of Basel, Switzerland. Fellowship funded by the Italian Ministry of University and Research.
- 2006-2008 Dr Elisa Bonacina. European Ph.D. program in Bioengineering, XXI cycle. Project "The effects of mechanical stimulation on development of human engineered cartilage". One year spent as visiting student at Prof Ivan Martin, Tissue Engineering Lab, University of Basel, Switzerland. Fellowship funded by the Italian Ministry of University and Research.

- 2004-2006 Dr Margherita Cioffi (in co-supervision). European Ph.D. program in Bioengineering, XIX cycle. Project "Computational modelling of transport phenomena within engineered tissue". Six months spent as visiting student at Prof Ivan Martin, Tissue Engineering Lab, University of Basel, Switzerland. Fellowship funded by the Italian Ministry of University and Research.
- 2002-2004 Dr Matteo Moretti. European Ph.D. program in Bioengineering, XVII cycle. Project "The mechanobiology of cartilage tissue engineering". One year spent as post-doctoral fellow at the Langer lab, Massachusetts Institute of Technology (MIT), Boston, USA. Fellowship funded by the industrial company Fidia Advanced Biopolymers (FAB) S.r.l., Abano Terme, Padua, Italy.

Appointments as Supervisor of Visiting students at Politecnico di Milano

- 2014 Hadis Eghbali, PhD student from Sistan and Baluchestan University of Zahedan, Iran

PROFESSIONAL APPOINTMENTS

- 2002-2006 Technical Consultant to the Public Prosecutor, Tribunal of Padova, Italy. Penal suit for the mechanical failure of a group of 34 bi-leaflet heart valve prostheses. My responsibility consisted in the analysis of the explanted components to determine their mechanisms of failure.
- 2002-2005 Technical Consultant to the Public Prosecutor, Tribunal of Torino, Italy. Penal suit for the mechanical failure of a group of 9 hip prostheses. My responsibility consisted in the analysis of the explanted components, to determine their mechanisms of failure.
- 2002 Technical Consultant to the Judge, Tribunal of Novara, Italy. Civil suit for the mechanical failure of a hip prosthesis. My responsibility consisted in the analysis of the explanted components, to determine their mechanisms of failure.
- 1997 Scientific Consultant, Lima Lto, Udine, Italy, the leading Italian industrial manufacturer of orthopaedic implants. My responsibility consisted in writing the technical sheets for the newly-developed hip prostheses.
- 1995 Technical Consultant, Zimmer Europe, Brussels, Belgium. European headquarters of the world-leading industrial manufacturer of orthopaedic implants. My responsibility consisted in the determination of the failure mechanisms of explanted components in the context of a civil suit for the failure of a bilateral hip replacement.
- 1994-1995 Hip Product Manager, Zimmer Italy S.r.l., San Donato Milanese, Milano, Italian branch of the world-leader industrial manufacturer of orthopaedic implants Zimmer Inc. (now Zimmer Biomet Inc.). My responsibility consisted in the promotion of the newly-imported hip prostheses and in technical assistance to surgeons in the operating room.

SCIENTIFIC DISSEMINATION

Organisation of scientific meetings

- 2018 Program co-chair, VI Congress of the Italian Group of Bioengineering (GNB 2018), Milan, Italy (www.gnb2018.polimi.it)
- 2017 Program co-chair, II Edition, Congress “Nanoengineering for Mechanobiology”, Camogli (GE), Italy (www.mechanobiology.eu/camogli2017)
- 2017 Organizer and Chair, Symposium "Bioengineered stem cell niches", European Chapter of the Tissue Engineering and Regenerative Medicine International Society (TERMIS-EU 2017), Davos, Switzerland (www.termis.org/eu2017)
- 2017 Co-organizer, Mini-Symposium “Computationally-guided design of cell culture bioreactors”, 5th International Conference on Computational and Mathematical Biomedical Engineering (CMBE 2017), Pittsburgh, USA (www.compbiomed.net/2017)
- 2015 Organizer and Chair, Invited Session "Mechanobiology", IEEE- Engineering in Medicine and Biology Society World Conference (IEEE-EMBS 2015), Milano, Italy (<http://embc.embs.org/2015>)
- 2014 Organizer and Chair, Symposium "Engineering regenerative niches", European Chapter of the Tissue Engineering and Regenerative Medicine International Society (TERMIS-EU 2014), Genova, Italy

Invited talks at international conferences

- 2015 Invited Speaker, Cardiovascular regenerative bioengineering. International School of Cardiac Surgery, Ettore Majorana Foundation and Centre for Scientific Culture, Erice, Italy, May 2015.
- 2014 Keynote Speaker, Bioengineered microenvironments for mesenchymal stem cells. European Chapter of the Tissue Engineering and Regenerative Medicine International Society (TERMIS-EU 2014), Genova, Italy, June 2014.
- 2011 Keynote Speaker, Mechanobiology of cartilage tissue engineering. ESB Symposium, European Chapter of the Tissue Engineering and Regenerative Medicine International Society (TERMIS-EU 2011), Granada, Spain, June 2011.
- 2008 Invited Speaker, Tissue engineering through simulation and experiments. 8th World Congress on Computational Mechanics (WCCM8), 5th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2008), Venezia, Italy, July 2008.
- 2005 Invited Speaker, The effect of fluid-dynamic shear on 3D engineered chondrocyte-cell systems. Fourth International Symposium on Mechanobiology of Cartilage and Chondrocyte, European Society on Cell and Tissue Engineering and Therapy, Budapest, Hungary, May 2005.
- 2003 Invited Speaker, Control and quantification of the mechanobiology of engineered cartilage. Third International Symposium on Mechanobiology of Cartilage and Chondrocyte, European Society on Cell and Tissue Engineering and Therapy, Nancy, France, May 2003.
- 2003 Invited Speaker, A comparative evaluation of chondrocyte-seeded scaffolds for cartilage engineering. Second International Conference on New Biomedical Materials, Cardiff, Wales, UK, April 2003.

Peer review of international conferences

- 2015 Associate Editor, 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society – World Congress (IEEE-EMBS 2015), Milano, Italy
- 2014 Abstract Reviewer, Annual meeting of the European Chapter of the Tissue Engineering and Regenerative Medicine International Society (TERMIS-EU 2014), Genova, Italy
- 2012 Student Award Committee, 19th Congress of the European Society of Biomechanics (ESB 2012), Lisbon, Portugal
- 2008 Abstract Reviewer, 16th Congress of the European Society of Biomechanics (ESB 2008), Lucerne, Switzerland
- 2006 Abstract Reviewer, 8th Biannual American Society of Mechanical Engineering (ASME 2006), Torino, Italy

Editing of scientific journals

- 2017-now Review Editor, area Nanobiotechnology, *Frontiers in Bioengineering and Biotechnology*, *Frontiers in Materials*, *Frontiers in Molecular Biosciences*
- 2017-now Advisory Editor, *Journal of Immunology and Regenerative Medicine*, edited by Elsevier
- 2015-now Section Editor, area Tissue engineering, Regenerative medicine and Tissue Transplantation, *International Journal of Artificial Organs*, edited by SAGE Journals

Peer review of ISI journals

- 2016-now Biomaterials
- 2014-now Nanoscale
- 2014-now ACS Applied Materials & Interfaces
- 2014-now Langmuir
- 2014-now Journal of Biotechnology
- 2012-now Journal of Tissue Engineering and Regenerative Medicine
- 2009-now Industrial & Engineering Chemistry Research
- 2008-now Biotechnology Progress
- 2007-now Annals of Biomedical Engineering
- 2006-now Journal of Biomechanics
- 2006-now Biomechanics and Modelling in Mechanobiology
- 2006-now Journal of Biomechanical Engineering - Trans. of the ASME
- 2006-now Computer Methods and Programs in Biomedicine
- 2005-now International Journal of Fatigue
- 2005-now International Journal of Artificial Organs
- 2004-now Journal of Applied Biomaterials and Functional Materials

PUBLICATIONS

Patents

1. **Raimondi MT**. Method and instrument for the geometrical evaluation of lesions affecting tissues or internal organs. Priority: 17/02/2004. PCT n. WO2005077292 published in date 25/08/2005. Italian patent n.1355081 granted 20/02/2009. European patent n. EP1715801 granted 30/05/2012.
2. Giacometti-Ceroni R, **Raimondi MT**, Colombini A. Surgical instrument for simulating, in the intraoperative phase, the functioning instability of acetabular components of hip prostheses. Priority: 28/12/2006. PCT n. WO 2008081308 published in date 10/07/2008. Italian patent n.1376027 granted 14/06/2010. European patent n. EP2097047 granted 19/05/2010.
3. Laganà K, **Raimondi MT**, Dubini G, Santoro R. Bioreactor for the generation and complex mechanical stimulation of engineered biological tissue. Priority: 9/10/2007. PCT n. WO2009047045 published in date 16/04/2009. Italian patent nr. 1383364 granted 22/12/2010..
4. **Raimondi MT**, Cecini P, Moretti M, Talò G. Italian patent application nr. MI2009A000388 for the industrial invention “Bioreattore per la generazione di tessuto ingegnerizzato con sistema di attuazione plurifunzionale”. Priority: 13/03/2009.
5. **Raimondi MT**, Cerullo G, Osellame R, Remuzzi A. “Matrici di nicchioidi sintetiche per la coltivazione di cellule staminali”. Priority: 04/09/2015. PCT “Synthetic niche matrices for stem cell culture” n. WO2017037108 published in date 9/03/2017.
6. **Raimondi MT**, Laganà M. “Dispositivo per la coltura cellulare”. Priority: 18/05/2016. PCT “A device for cell culture” n. WO2017199121 published in date 23/11/2017.
7. **Raimondi MT**, Cerullo G, Conci C, Zandrini T, Osellame R, Chirico G. IT 102017000147857 “Dispositivo medico impiantabile”. Priority: 21/12/2017. PCT PCT/IB2018/060222.
8. Carelli S, **Raimondi MT**, Di Giulio AM, Giallongo T, Gorio A, Cerullo G, Osellame R. Italian patent application nr. 102019000003377 for the industrial invention “Induzione geometrica di pluripotenza”. Priority date: 8/3/2019.

Journal articles

1. Pietrabissa R, **Raimondi MT**, Di Martino E. Wear of polyethylene cups in total hip arthroplasty: a parametric mathematical model. Medical Engineering & Physics. 1998; 20(3):199-210. ISSN: 1350-4533.
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