CURRICULUM VITAE

PAOLO DECUZZI, Ph.D.

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EDUCATION

1997	M.Sc. in Mechanical Engineering	Politecnico of Bari - ITALY
2001	Ph.D. in Mechanical Engineering	University of Naples "Federico II"- ITALY

PROFESSIONAL EXPERIENCE

Italian Institute of Technology - IT
2015 July – Professor and Senior Researcher at the Italian Institute of Technology in Genova (@ Dept of Drug Discovery and Development)

Houston Methodist Research Institute - USA
2010 Oct – 2015 July Professor of Biomedical Engineering at The Methodist Hospital Research Institute (@ Dept of Translational Imaging)

University of Texas Health Science Center at Houston - USA
2009 Oct – 2010 Sept Associate Professor at The University of Texas Health Science Center at Houston(@ SHIS and Med School)

University of Texas Health Science Center at Houston- USA
2006 Oct and 2007Jan – 2009 Oct Visiting Associate Professor at The University of Texas Health Science Center at Houston(@ SHIS)

Universityof Magna Graecia - ITALY
2004 Dec – 2009 Sept Associate Professor of Mechanical and Biomedical Engineering (on leave - in Congedo di Ricerca Senza Assegni ai sensi dell"Art.7 della Legge n.240 del 30.12.2010)

Ohio State University - USA

2003 Nov and 2003 Feb to Apr	Visiting Professor at the M. Doris Davis Heart and Lung Research Institute

Princeton University - USA

2003 Set	Visiting Professor at the Princeton Materials Institute

Politecnico of Bari - ITALY

2002 – 2004 Dec	Assistant Professor of Mechanical Engineering
2001 – 2002	Post Doctoral Fellow

University of Michigan – Ann Arbor - USA

2001 Apr	Visiting Scientist at the Dept. of Theoretical and Applied Mechanics
1999 Jun– 2000 Jun	Visiting Scholar at the Dept. of Theoretical and Applied Mechanics

University of Southampton - UK

2000 Oct	Visiting Scholar at the Dept. of Mechanical Engineering

OTHER PROFESSIONAL EXPERIENCE

NIH – Study Section

2014 Nov	Member of the Special Emphasis Panel/Scientific Review Group on "NCI Physical Sciences Oncology Centers"
2013 July	Member of the Study Section on "Cancer Diagnostic and Therapeutic Agents Enabled by Nanotechnology/ Small Business Innovation Research (SBIR)"
2012 Oct	Member of the Study Section on "Gene and Drug Delivery"
2011 Nov	Member of the Study Section on "NIH Support for Conferences and Scientific Meetings"
2011 Oct	Member of the Study Section on "Gene and Drug Delivery"
2011 Mar	Member of the Review Panel for "Physical and Engineering Sciences in Oncology"
2010 Nov	Member of the Study Section on "Shared Instrumentation Grant"
2010 Jun	Small Business Innovation Research (SBIR) Contract Proposals for the US National Cancer Institute
2009 July	Innovative Molecular Analysis Technologies Program (IMAT) for the US National Cancer Institute

Review Panel – ESF

2014 May - Nov	Member of the "Exact Sciences Panel" and "Multidisciplinary Sciences Panel" for the Fundação para a Ciência e a Tecnologia (Portugal)

The Methodist Hospital Research Institute

2010 Oct –	Member of the Scientific Steering Committee of HMRI
2010 Oct –	interim-chair for the Dept of Nanomedicine and Biomedical Engineering
2013 Feb –	interim-chair for the Dept of Translational Imaging
2013 Feb –	Member of the Council of Chairs Research Committee
2013 Feb –	Member of Institute of Academic Medicine Council of Chairs at Houston Methodist

Rice University (Houston, Texas)

2012 –	PhD Committee "Chemistry and Chemical Engineering"

University of Houston (Houston, Texas)

2013 –	PhD Committee "Electrical Engineering"
2014 –	PhD Committee "Electrical Engineering"

ASME Nanotechnology Institute
2010 Feb – Member of the Steering Committee

Politecnico di Bari
2003 – PhD Committee "Machine Engineering"

Italian Navy

1998 May – 1999 May	Lieutenant of the Italian Navy and Commander of the Honour Guard in Rome
1998 March – May	Cadet of the Italian Naval Academy

RESEARCH INTERESTS

The research activities in Decuzzi laboratory focus on the synthesis, development, and medical application of nanoconstructs for multimodal imaging and combinatorial therapy. These nanoconstructs are rationally designed so to recognize, upon systemic injection, the diseased tissue and specifically deliver drug molecules and contrast agents. Decuzzi laboratory follows a unique research approach where *in silico* mathematical modeling, *in vitro* microfluidic chips, and *in vivo* small animal models are synergistically integrated to rationally design novel therapeutic and imaging nanoconstructs.

The laboratory is currently developing four different nanoconstructs with different biomedical applications: i) Discoidal Polymeric Nanoconstructs (DPNs), whose size, shape, surface properties, and mechanical stiffness are rationally designed to maximize accumulation within the tumor vasculature while reducing non-specific sequestration by the organs of the reticulo-endothelial system; ii) Spherical Polymeric Nanoconstructs (SPNs), tagged with a-LFA1 (and other molecules) for targeting cells of the immune system in cancer, cardiovascular and inflammatory diseases; iii) tPA-NCs, where tissue plasminogen activator molecules are used to stabilize super-paramagnetic iron oxide nanocubes for blood clot lysis and MR imaging in thrombotic diseases; iv) tPA-PFCs, where tissue plasminogen activator molecules are used to stabilize perfluorocarbon micro-bubbles for blood clot lysis and US imaging in thrombotic diseases. DPNs and SPNs have been successfully loaded with Docetaxel, Doxorubicin, Rosiglitazone, Curcumin, and other molecules for therapeutic intervention in cancer and cardiovascular diseases. Also, Gd^{3+}-ions and Cu^{2+}-ions have been chelated to the polymeric structure of SPNs and DPNs for MR and nuclear imaging.

This research has been supported by the US National Cancer Institute, US Department of Defense, Cancer Prevention Research Institute of Texas, the European Science Foundation and European Research Council.

Major Area of Research: nanomedicine, targeted delivery, biomedical imaging, combinatorial therapy, ablation therapy, and mathematical modelling.

RESEARCH FUNDINGS

CURRENT AND PAST

2014 **P. Decuzzi**(PI) *Engineering Discoidal Polymeric Nanoconstructs for the Multi-Physics Treatment of Brain Tumors.* European Research Council Consolidator Grant 07/01/2014 - 06/30/19 (Euro 2,400,000)

2013 **P. Decuzzi**(PI) *tPA-Nanoconstructs for the Mechano-chemical Lysis of Blood Clots*. George and Angelina Kostas Research Center for Cardiovascular Nanomedicine, 07/01/2014 - 06/30/15 ($ 100,000)

2013 **P. Decuzzi**(co-PI) *Circulating tumor microemboli (CTM) interactions with blood cells and plasma in the vascular microenvironment*. National Cancer Institute, Trans-network PS-OC project 06/01/2012-05/30/13 ($ 321,000)

2013 **P. Decuzzi**(PI) *Magnetic Nanoconstructs for the Early Detection and Ablation Therapy of Tumors*. TI Pilot Project. 01/01/14 - 12/31/14 ($ 50,000)

2013 **P. Decuzzi**(co-PI) *Circulating tumor microemboli (CTM) interactions with blood cells and plasma in the vascular microenvironment*. National Cancer Institute, Trans-network PS-OC project 01/08/2013-07/30/2014 ($ 100,000)

2012 **P. Decuzzi**(co-PI) *Circulating tumor microemboli (CTM) interactions with blood cells and plasma in the vascular microenvironment*. National Cancer Institute, Trans-network PS-OC project 06/01/2012-05/30/13 ($ 75,000)

2012 **P. Decuzzi** (co-PI). *A High Throughput Screening Platform with Mathematical Modeling to Evaluate the Interactions between Nanoparticle Agents and the Mononuclear Phagocyte System (MPS) in Humans and Preclinical Animal Models*. National Cancer Institute, Trans-network CCNE project 06/01/2012-05/30/13 (ca $ 5,000)

2012 **P. Decuzzi** (PI) *Rationally Designed TheranosticNanoconstructs for MRI Imaging and Triggered Drug Release*. National Cancer Institute, Trans-network CCNE project 06/01/2012-05/30/13 (ca $ 71,750)

2011 **P. Decuzzi** (PI) *Nanoconstruct-Based Dual Imaging of Single Metastatic Cells In Vivo*. National Cancer Institute, Trans-network CCNE project 03/01/2012-02/28/13 (ca $ 72,266)

2011 **P. Decuzzi** (PI, 30% effort) *Rationally designed magnetic nanoconstructs for the imaging and hyperthermia of tumor cells and neovasculature*. Cancer Prevention Research Institute of Texas 02/01/2011-01/31/2014 (ca $1,500,000)

2010 **P. Decuzzi** (co-PI, 25% effort) *Texas Center for Cancer Nanomedicine*. National Cancer Institute. 09/01/2010 - 08/31/2015 (ca $16,000,000)

2009 **P. Decuzzi** (PI, 2% effort) *Rational Design of Particulate Systems for the Imaging and Hyperthermia Treatment of an Inflamed Endothelium*. TATRC of the US Army Medical Research Acquisition Activity (USAMRAA) 09/01/2009-08/31/2011 ($450,000)

2009 **P. Decuzzi** (PI, 5% effort) *Subcellular Localization of Nanoparticles* National Institute of General Medical Sciences, 09/30/2009-08/31/2011 ($3,000,000)

2009 **P. Decuzzi** (core Leader, 5% effort) *Center for Transport OncoPhysics* National Cancer Institute 09/28/2009-07/31/2015 ($11,647,816)

2009 **P. Decuzzi** (co-Inv, 10% effort) *Towards individualized breast cancer therapy: Leveraging molecular medicine with multi-stage vector technology* US Department of Defense, 03/01/2009–02/28/2014 ($7,014,069)

2009 **P. Decuzzi** (co-Inv, 15% effort) *BioNanoScaffolds (BNS) for Post-Traumatic Osteoregeneration* US Department of Defense, 01/01/2009-12/31/2010 ($7,865,017)

2008 **P. Decuzzi** (PI, 10% effort – no salary) *An Integrated Framework for Engineering Bio-Mimetic Adhesive Interface* European Science Foundation EUROCORES Programme FANAS 09/01/2008 – 08/31/2011 (1,200,000 Euro)

2007 **P.Decuzzi**(co-Inv, 10% effort) *The Medical Nanovector Research and Development Center of The Alliance for NanoHealth* US Department of Defense, 08/29/2007-08/28/2010 ($2,702,000)

2007 **P. Decuzzi** (co-PI, 60% effort) *BioGEO-Understanding the Effect of Size and Shape in Biological Systems to Learn Fabricating Biomimetic Artifical Systems with Superior Properties* US Department of Defense, 09/18/2007 – 04/17/2008 ($300,000)

2006 **P. Decuzzi** (co-Inv, 10% effort – no salary) *Development of an Integrated Platform for Nanoparticle Analysis to verify their possible toxicity and the eco-toxicity* FP6 European Union Programme NMP, 09/01/2006 – 08/31/2009 ($1,000,000)

INVITED LECTURES AND SHORT COURSES

09/2015 "Multifunctional nanoconstructs for cancer and cardiovascular applications", Ospedale Galliera, Genova, Italy

09/2015 "Multifunctional nanoconstructs for cancer teranosis", Yonsei University, South Korea

07/2015 "Engineering nanofluids for energy and biomedical applications and polymeric nanoconstructs for the treatment of brain tumors", Summer School in Fisica Tecnica, Università del Sannio, Italy
03/2015 "Nanoconstructs: from in silico to in vivo", Università di Bari, Bari, Italy
11/2014 "Smart Multifunctional hydrogels for cancer treatment", Politecnico di Torino, Torino, Italy
11/2014 "Discoidal Polymeric Nanoconstructs with unprecedented longevity in blood and tumor accumulation", University of Florence, Florence, Italy
09/2014 "Multifunctional Nanoconstructs for Biomedical Applications: from in silico modeling to in vivo experiments", Yonsei University Biomedical Engineering, Seoul, Korea
09/2014 "Multifunctional Nanoconstructs: from in silico modeling to in vivo experiments", Advanced Institutes of Convergence Technology, Seoul National University, Seoul, Korea
09/2014 "Multifunctional Nanoconstructs for Biomedical Applications", Sungkyunkwan University, Suwon, Korea
06/2014 "Multifunctional Discoidal Polymeric Nanoconstructs for Cancer Theranostics" Tel Aviv University, Tel Aviv, Israel
04/2014 "Multifunctional nanoconstructs for targeting the diseased vasculature: from in silico to in vivo", Texas Technical University, Lubbock, TX -USA
11/2013 "Shifting the '100 nm paradigm': an early Saturday morning discussion" at the CRS workshop, University of Pavia (IT)
06/2013 "Multifunctional Nanoconstructs for Biomedical Applications: from in silico modeling to in vivo experiments", Politecnico di Torino – June 13, 2013; Turin (IT).
06/2013 "Rationally Designed Multifunctional Nanoconstructs with Tumoritropic Accumulation", Laboratoire Matière et Systèmes Complexes, CNRS and Université Paris Diderot – June 11, 2013; Paris (FR).
06/2013 "Rational Designed of Multifunctional Nanoconstructs", Italian Institute of Technology – Genoa – June 12, 2013; Genoa (IT).
05/2013 "Magnetic Nanoconstructs for MR imaging and nanomanipulation", within the 8th Annual Korean Institute of Science and Technology/Purdue University Symposium at Purdue University – May 16, 2013; West Lafayette (IN – USA)
11/2012 "Biodistribution and Modeling/Multi-stage Delivery – A tutorial". NCI Alliance for Nanotechnology in Cancer / Annual Principal Investigators' Meeting - November 13-17, 2012 - Houston Texas, (TX-USA).
11/2012 "Multifunctional Nanoconstructs for Biomedical applications". Dept of Mechanical Engineering – The University of Texas San Antonio. November 1, 2012, San Antonio, (TX-USA).
09/2012 "Nanoconstructs for Biomedical Imaging". Dept of Chemical Engineering – University of Michigan. Sept 25th, Ann Arbor (MI-USA).
05/2012 "On the Rational Design of Biomedical Nanoconstructs". Korean Institute of Science and Technology. May 26, 2012, Seoul, Korea.
05/2012 "Rational Design of Multifunctional Nanoconstructs for Biomedical Imaging and Cancer Therapy". Stanford University - Dept. of Radiology. Molecular Imaging Program (MIPS). May 3, 2012, Stanford CA
11/2011 "Rationally Design of Nanoparticles for Targeting the Angiogenic Vasculature". Cornell PS-OC Symposium: Translational Cancer Research Symposium. November 4, 2011, Houston TX
09/2011 "Nanoparticle Biodistribution: Physical vs. Biological Effects". NCI Alliance for Nanotechnology in Cancer – Annual Principal Investigators' Meeting – September 21-23, 2011, Boston MA
09/2011 "Cell adhesion and proliferation on nano-engineered substrates". Joint ICTP-FANAS Conference on Trends in Nanotribology, 12 September 2011 - 16 September 2011, Trieste – (IT)
07/2011 "Rational Nanoparticles Design in Biomedical Imaging and Therapy". The University of Magna Graecia, Catanzaro (IT)
07/2011 "On the Design of Nanoparticles for Biomedical Imaging". The German Cancer Research Center, Heidelberg (D)

07/2011 "Cell proliferation on rough substrates". Cellular Nano-Sciences Conference 3-6 July 2011 Heidelberg (D)
04/2011 "Nanoparticles for Biomedical Imaging and Therapy". Politecnico di Bari, Bari (IT)
11/2010 "An Integrated Approach for the Rational Design of Nanoparticles". CCNE kick-off Meeting in Bethesda (USA); 15-17 November 2010
10/2010 "Cells preferentially grow on moderately rough substrates". FANAS Workshop at the Leibniz Institute for New Materials (INM) in Saarbrücken (Germany); 22-25 October 2010
09/2010 "Rational design of Nanoconstructs for biomedical imaging and thermal ablation". IFOM/IEO Seminar Series in Milan (Italy); 13 September 2010
07/2010 "The role of nanogeometry in bioadhesion". Gecko Workshop at Leibniz Institute for New Materials (INM) in Saarbrücken (Germany); 7-10 July 2010
06/2010 "On the role of geometry at the nanoscale: from the systemic delivery of nano-particle systems to cell adhesion", Italian Institute of Technology in Genoa (Italy); 16 June 2010
04/2010 An integrated approach for the rational design of MRI contrast agents with large longitudinal relaxivity. Breakthroughs in Nanoparticles for Bio-Imaging. April 8-9. 2010. Rome IT
06/2009 On the Rational Design of Nano-Sized Particle Systems for Biomedical Applications: the 3S problem. "NANOFORUM" Turin (IT) June 2009
06/2009 "On the adhesive dynamics of nano-sized particulate systems in laminar flows" II South East European Conference on Computational Mechanics 2009 - ECCOMAS and IACM Special Interest Conference
03/2009 "On the rational design of nano-sized particulate systems for biomedical applications: the 3S problem" DIMET COURSE "Nanoparticles in Medicine" UniversitàdegliStudi di Milano Bicocca, MILANO
10/2008 "Rational Design for Particulate Based Systems for Biomedical imaging and Therapy", departmental seminar at Ohio State University – Dept. Mechanical Engineering on invitation by Prof. Bharat Bhushan
03/2008 "An integrated framework for the design of personalized nano-sized particulate systems for biomedical applications", within the Seminar Series 2008 of the University of Texas Health Science Center Houston
12/2007 "Le nanotecnologie in cardiologia", Invited Lecture, 68° Congresso Nazionale della Societa' Italiana di Cardiologia, Roma 15-18 Dicembre 2007 Hotel Cavalieri Hilton – ITALY
07/2007 "On the Margination Dynamics of NanoParticles within a Capillary Flow"; Invited Lecture, 9th U.S National Congress on Computational Mechanics, July 22-26San Francisco (CA) – USA
07/2007 "Rational Design: The First Stage Nano-Particle"; Research Seminar at the University of Texas at Austin, July 04, 2007, Austin (TX) – USA
12/2006 "Rational Design" of Nanoparticles for Imaging and Cancer Therapy; Research Seminar at the Politecnico of Turin, December 07, 2006, Torino – ITALY
10/2006 'Rational Design' of Nanoparticles for Cancer Imaging and Therapy; Special Seminar at the University of Texas, October 20, 2006, Houston – USA
10/2006 "Mathematical Design of Nanoparticles for Cancer Imaging and Therapy"; Targeted Nanodelivery: Enabling targeted therapies and Non-Invasive Imaging Conference, October 13, 2006, Baltimore – USA
07/2005 "BioAdhesion"; Summer School on BioMathematics; International School for Advanced Studies (SISSA), Trieste – ITALY
07/2003 "Mathematical modeling of NanoParticle/Cell Adhesion"; within the "Short Course for NanoScience and NanoEngineering for Medical Applications" at the Politecnico of Turin – ITALY
06/2003 "Intravascular delivery of Nanoparticles"; Research Seminar at the School of Medicine, University of Magna Graecia, ITALY

DISSEMINATION ACTIVITIES

01 – 03 /2015	Progetto "Messaggeri della Conoscenza", January to March, 2015; Università di Bari; Bari (IT);
11/2014	1st International "Workshop on Nanotechnology in Cancer Treatment"; Salone d'Onore del Castello del Valentino", November 10, 2014; Politecnico di Torino; Torino (IT);
12/2012	Winter School on "Cancer Nanotechnology and Tissue Engineering", December 6-9, 2012; Politecnico di Bari; Bari (IT);
10/2012	First NEMB Venice Workshop on "Cancer Nanotechnology", October 11-12, 2012; Venice Academy of Science; Venice (IT);
04/2012	First NEMB Workshop on "Challenges for Engineers in Biomedical & Clinical Sciences", April 20, 2012; ASME Washington DC Office; Washington DC (USA);
06/2011	Lecture and Organizer for the NSF Summer Institute Workshop "Cancer Nanotechnology: Analysis, Imaging and Treatment Over Multiple Scales", 7-9 June 2011, TMHRI Houston (TX-USA)
05/2011	Lecture and Organizer for the NEMB2011 China Workshop "Cancer Nanotechnology", 2 June 2011, Beijing (CHINA)
05/2010	Chair of the FANAS Workshop on "'Understanding Adhesion: from Nature to man-made devices" May 10-11, 2010. Alberobello (BA). Italy
02/2010	Technical Chair of the ASME 2010 First Global Congress on NanoEngineering for Medicine and Biology (NEMB2010). Feb. 7-10, 2010 Houston, TX.
06/2009	Chair of the FANAS Minisymposium on "Multiscale Modelling of Adhesion and Friction" at ECCOMAS and IACM Special Interest Conference, 22-24 June 2009 in Rhodes, Greece

TEACHING AND STUDENT SUPERVISION

Former Students and Post-Doctoral Fellows now Faculties

Student / Post-Doc	*Ranking*	*University*
Jaehong Key, Ph.D.	Assistant Professor of Biomedical Engineering (2015 -)	Yonsei University (KR)
Santosh Aryal, Ph.D.	Assistant Professor of Chemistry (2014 -)	Kansas State University (USA)
Tae-Rin Lee, Ph.D.	Assistant Professor of Biomedical Engineering (2014 -)	Seoul National University (KR)
Francesco Gentile, Ph.D.	Associate Professor of Biomedical Engineering (2014 -)	University of Naples – Federico II (IT)
Sei-Young Lee, Ph.D.	Assistant Professor of Biomedical Engineering (2012 -)	Yonsei University (KR)

Italian Institute of Technology – Genova

Supervised Graduate Students	*Degree*	*Current Occupation*
Andrea Ameruoso	B.Sc. Biotechnology, 2013	M.Sc. in Biotechnology; Univ. di Bari
Marianna Colasuonno	B.Sc. Biotechnology, 2013	M.Sc. in Biotechnology; Univ. di Bari
Gabriella Leone	B.Sc. Biotechnology, 2013	M.Sc. in Biotechnology; Univ. di Bari
Valeria Lusi	B.Sc. Chemical Engineering, 2013	M.Sc. Chemical Engineering; Univ. Aquila

The Methodist Hospital Research Institute – Houston

Supervised Graduate Students	*Degree*	*Current Occupation*
Maris Zamovskis	M.S. Biochem. Engineering, 2013	M.S. in Biochemical Engineering
Eszter Voros	M.S. Biochem. Engineering, 2013	M.S. in Biochemical Engineering
Sara Esposito	M.S. Pharmac. Sciences, 2011	PhD student in Pharmac. Sciences
Matteo Fasano	M.S. Engineering, 2012	PhD student in Engineering

AnnaLisa Palange	M.S. Biology, 2010	PhD student in Biotechnology
Pietro Mascheroni	M.S. Physics, 2013	PhD student in Civil Engineering
Ayrat Gizzatov	B.S. Chem, 2009	PhD candidate in Chemistry
Nasim Taheri	B.S. Chem, 2012	PhD candidate in Chemistry

Supervised Graduate Students	*Degree*	*Current Occupation*
Cinzia Stigliano	M.S. Biotech., 2010	PostDoc at TMHRI
Giulia Adriani	M.S. Mech.Eng., 2008	PostDoc at Singapore National University
Tommaso Novellino	M.S. Biom Eng., 2007	PhD in Biomedical Engineering
Richa Sethi	Ph.D. Chem, 2012	Researcher in Energy/Oil Sector
Antonio Cervadoro	PhD Biom Eng, 2014	PostDoc at Univ. of Houston
Daniele Di Mascolo	PhD Biom Eng, 2014	PostDoc at IIT – GE
Tae-Rin Lee	Ph.D. Mech. Eng, 2012	Assistant Professor at Seoul National Univ
Minjung Chow	Ph.D. Chemistry, 2013	Researcher in Energy/Oil Field

University of Texas – Houston

Supervised Graduate Students	*Degree*	*Current Occupation*
Sei Young Lee, Ph.D.	M.Sc. Mech.Eng., 2005	Assistant Professor Yonsei Univ.
Aman Mann, Ph.D.	Bio. Sci., 2011	Post Doctoral Fellow
Srimeenakshi Srinivasana	M.Sc. Bio. Sci., 2007	PhD candidate in Biomedical Sciences
Tommaso Novellino, Ph.D.	Biom Eng., 2011	Post Doctoral Fellow

University of Magna Graecia

New Classes		*Classe Taught*	
2005 –	BioNanoMechanics	2004 –	Design of Machine
2005 –	Numerical Methods in Biomedical Engineering	2003 –	Strength of Materials

UnderGraduate Students Supervised	*Degree*	*Current Occupation*
Giovanni Barbieri	Biomed.Eng., 2005	Graduate students in Biomedical Engineering at the University of Magna Graecia
Antonella Fontana	Biomed.Eng., 2005	
Marco Tavano	Biomed.Eng., 2005	
Cristian Veraldi	Biomed.Eng., 2005	

Graduate Student Supervised	*Degree*	*Current Occupation*
Francesco Gentile, Ph.D.	Biomed Eng., 2006	Research Associate

Currently Supervised Graduate Student	*Degree*	*Current Occupation*
Giovanni Barbieri	Biomed. Eng., 2005	Graduate students in Biomedical Engineering at the University of Magna Graecia
Antonella Fontana	Biomed.Eng., 2005	

Politecnico of Bari at Bari

Classes Taught	
2002 – 2004	Design of Machines and Numerical Methods in Engineering

Graduate Students Supervised	*Degree*	*Current Occupation*
Sabina Campanelli	Mech. Eng., 2000	Assistant Prof – Politecnico di Bari
Vito Tagarielli	Mech. Eng., 2001	Post Doctoral Fellow at Cambridge Centre for Micromechanics – UK
Giuseppe Macina	Mech. Eng., 2001	Engineer - FIAT AUTO
Luciano Afferrante	Mech. Eng., 2001	Post Doctoral Fellow at the Politecnico di Bari
Roberto Pizzi	Mech. Eng., 2002	Engineer in FIAT AUTO
TommasoSoranno	Mech. Eng., 2003	Engineer in Bosch

Ruggero Gissi	Mech. Eng., 2004	Engineer in Bosch
Vincenzo Zaza	Mech. Eng., 2004	Engineer inGETRAG
Alessandro Granaldi	Mech. Eng., 2004	Engineer in ALENIA

Politecnico of Bari at Foggia

Classes Taught

2001 – 2002 Design of Machines

EDITORIAL WORK

2013 – *Springer Molecular and Cell Therapies (Advisory Board)*
2010 – *Springer Encyclopaedia of Nanotechnology (Section Editor)*
2010 – *Frontiers in Biotechnology (Editorial Board)*
2008 – *Journal of the Serbian Society of Computational Mechanics (Editorial Board)*
2004 – 2015 *Biomedical Microdevices– (Associate Editor and Editorial Board)*
2015 – *Current Bionanotechnology – (Section Editor: Nanomechanics)*

Reviewer for

Nature Nanotechnology; Nature Materials; ACS Nano; Nano Letters; Journal of Controlled Release; Biomedical Microdevices; Journal of Biomechanics; Annals of Biomedical Engineering; Biophysical Journal; ASME Journal of Applied Mechanics; Biotechnology and Bioengineering; PLoS Computational Biology; International Journal of Solids and Structures; Journal of Strain Analysis; WEAR.

PATENTS (US PATENT & TRADEMARK OFFICE)

02/2010 Particle compositions with a pre-selected cell internalization mode. P. Decuzzi and M. Ferrari – 20100029785
08/2008 Endocytotic Particles, P. Decuzzi and M. Ferrari – 20080206344
05/2008 Particles for Cell Targeting, P. Decuzzi and M. Ferrari – 20080102030

AFFILIATIONS

2010 – American Society of Mechanical Engineers (ASME)
2010 – American Association for Cancer Research (AACR)
2007 – 2010 Member of the Scientific Advisory Board of Leonardo BioSystem, Inc.
2007 – 2010 Institute for the Physics of Matter of the National Research Council (CNR - Italy)

1997 – Italian Society for Mechanical Stress Analysis (AIAS)
1997 – 2015 Society of the Italian Engineers

BIBLIOGRAPHY

Peer-Reviewed International Journals:

1. M. Cho, J. Key, M. Ramirez, C. Stigliano, A. Cervadoro, A. Brazdeikis, V.L. Colvin, P. Civera and **P. Decuzzi**. Clustering Iron Oxide Nanocube for Enhanced Magnetic Resonance Imaging and Hyperthermia Treatment, SMALL, 08/2015, ***Under Review***

2. J. Key, A.L. Palange, F. Gentile, S. Ayral, C. Stigliano, D. Di Mascolo, E. De Rosa, M. Cho, Y. Lee, J. Singh, and **P. Decuzzi**. Soft Discoidal Polymeric Nanoconstructs Resist Macrophage Uptake and Enhance Vascular Targeting in Tumors, , ACS NANO, 08/2015, ***Under Review***
3. C. Stigliano, J. Key, M. Ramirez, and **P. Decuzzi**. Radiolabeled polymeric nanoconstructs loaded with docetaxel and curcumin for cancer combinatorial therapy and nuclear imaging, ADVANCED FUNCTIONAL MATERIALS 2015 , 25 (22), PP. 3371-3379
4. Hossain, S.S., Zhang, Y., Fu, X., Brunner, G., Singh, J., Hughes, T.J.R., Shah, D., **Decuzzi, P.** Magnetic resonance imaging-based computational modelling of blood flow and nanomedicine deposition in patients with peripheral arterial disease, JOURNAL OF THE ROYAL SOCIETY INTERFACE 2015 12 (106), 20150001
5. Iodice, C., Cervadoro, A., Palange, A., Key, J., Aryal, S., Ramirez, M.R., Mattu, C., Ciardelli, G., O'Neill, B.E., **Decuzzi, P.** Enhancing photothermal cancer therapy by clustering gold nanoparticles into spherical polymeric nanoconstructs. OPTICS AND LASERS IN ENGINEERING December 31, 2014
6. Bruno, L., **Decuzzi, P.**, Gentile, F. Stress distribution retrieval in granular materials: A multi-scale model and digital image correlation measurements. OPTICS AND LASERS IN ENGINEERING December 31, 2014
7. King, M.R., Phillips, K.G., Mitrugno, A., Lee, T.-R., de Guillebon, A.M. E., Chandrasekaran, S., McGuire, M.J., Carr, R.T., Baker-Groberg, S.M., Rigg, R.A., Kolatkar, A., Luttgen, M., Bethel, K., Kuhn, P., **Decuzzi, P.**, McCarty, O.J. T. A physical sciences network characterization of circulating tumor cell aggregate transport. AMERICAN JOURNAL OF PHYSIOLOGY - CELL PHYSIOLOGY. 2015, 308, 10, Pages C792-C802
8. Marinaro G, La Rocca R, Toma A, Barberio M, Cancedda L, Di Fabrizio E, **Decuzzi P**, Gentile F. Networks of neuroblastoma cells on porous silicon substrates reveal a small world topology. INTEGRATIVE BIOLOGY (UNITED KINGDOM) 2015 7 (2), PP. 184-197
9. E. Voros, M. Cho, M. Ramirez, E. De Rosa, J. Key, Z. Garami, A.B. Lumsden and **P. Decuzzi**. tPA immobilization on iron oxide nanocubes and localized magnetic hyperthermia accelerate blood clot lysis, ADVANCED FUNCTIONAL MATERIALS, 2015 25 (11), PP. 1709-1718
10. Sciumè G, Santagiuliana R, Ferrari M, **Decuzzi P**, Schrefler BA. A tumor growth model with deformable ECM. PHYS BIOL. 2014; 11(6):065004.
11. Key J, Kim YS, Tatulli F, Palange AL, O'Neill B, Aryal S, Ramirez M, Liu X, Ferrari M, Munden R, **Decuzzi P.** Opportunities for NanoTheranosis in Lung Cancer and Pulmonary Metastasis. CLIN TRANSL IMAGING. 2014; 2(5):427-437.
12. Cho M, Sethi R, Ananta Narayanan JS, Lee SS, Benoit DN, Taheri N, **Decuzzi P**, Colvin VL. Gadolinium oxide nanoplates with high longitudinal relaxivity for magnetic resonance imaging. NANOSCALE. 2014; 6(22):13637-45.
13. Cervadoro A, Cho M, Key J, Cooper C, Stigliano C, Aryal S, Brazdeikis A, Leary JF, **Decuzzi P.** Synthesis of multifunctional magnetic nanoflakes for magnetic resonance imaging, hyperthermia, and targeting. ACS APPL MATER INTERFACES. 2014; 6(15):12939-46.
14. Gizzatov A, Stigliano C, Ananta JS, Sethi R, Xu R, Guven A, Ramirez M, Shen H, Sood A, Ferrari M, Wilson LJ, Liu X, **Decuzzi P.** Geometrical confinement of Gd(DOTA) molecules within mesoporous silicon nanoconstructs for MR imaging of cancer. CANCER LETT. 2014; 352(1):97-101
15. Bao G, Bazilevs Y, Chung JH, **Decuzzi P**, Espinosa HD, Ferrari M, Gao H, Hossain SS, Hughes TJ, Kamm RD, Liu WK, Marsden A, Schrefler B. USNCTAM perspectives on mechanics in medicine. J R SOC INTERFACE. 2014; 11(97):20140301
16. Fronczyk K, Guindani M, Vannucci M, Palange A, **Decuzzi P.** A Bayesian hierarchical model for maximizing the vascular adhesion of nanoparticles. COMPUT MECH. 2014; 53(3):539-547.
17. Kolosnjaj-Tabi J, Di Corato R, Lartigue L, Marangon I, Guardia P, Silva AK, Luciani N, Clément O, Flaud P, Singh JV, **Decuzzi P**, Pellegrino T, Wilhelm C, Gazeau F. Heat-generating iron oxide nanocubes: subtle "destructurators" of the tumoral microenvironment. ACS NANO. 2014; 8(5):4268-83.
18. Chiavazzo E, Fasano M, Asinari P, **Decuzzi P.** Scaling behaviour for the water transport in nanoconfined geometries. NAT COMMUN. 2014; 5:4565.
19. Aryal S, Key J, Stigliano C, Landis MD, Lee DY, **Decuzzi P.** Positron emitting magnetic nanoconstructs for PET/MR imaging. SMALL. 2014; 10(13):2688-96.

20. Palange AL, Di Mascolo D, Carallo C, Gnasso A, **Decuzzi P.** Lipid-polymer nanoparticles encapsulating curcumin for modulating the vascular deposition of breast cancer cells. NANOMEDICINE. 2014; 10(5):991-1002
21. Sciumè G, Shelton S, Gray W, Miller C, Hussain F, Ferrari M, **Decuzzi P**, Schrefler B. A multiphase model for three-dimensional tumor growth. NEW J PHYS. 2013; 15:015005.
22. Gizzatov A, Keshishian V, Guven A, Dimiev AM, Qu F, Muthupillai R, **Decuzzi P**, Bryant RG, Tour JM, Wilson LJ. Enhanced MRI relaxivity of aquated Gd3+ ions by carboxyphenylated water-dispersed graphene nanoribbons. NANOSCALE. 2014; 6(6):3059-63.
23. **Decuzzi P.** Patient-Specific Computational Modeling and Magnetic Nanoconstructs: Tools for Maximizing the Efficacy of Stem Cell-Based Therapies. METHODIST DEBAKEY CARDIOVASC J. 2013 Oct;9(4):223-228. Review.
24. **Decuzzi P**, Cooke JP. Regenerative medicine in cardiovascular disease: introduction. METHODIST DEBAKEY CARDIOVASC J. 2013 Oct;9(4):186.
25. Coughlin AJ, Ananta JS, Deng N, Larina IV, **Decuzzi P**, West JL. Gadolinium-Conjugated Gold Nanoshells for Multimodal Diagnostic Imaging and Photothermal Cancer Therapy. SMALL. 2013 Sep 23. doi: 10.1002/smll.201302217. [Epub ahead of print]
26. Hossain SS, Hughes TJ, **Decuzzi P.** Vascular deposition patterns for nanoparticles in an inflamed patient-specific arterial tree. BIOMECH MODEL MECHANOBIOL. 2013 Aug 14. [Epub ahead of print]
27. Ranganathan SI, Ferrari M, **Decuzzi P.** Design maps for scaffold constructs in bone regeneration. Biomed Microdevices. 2013 Jul 10. [Epub ahead of print]
28. S. Aryal, J. Key, C. Stigliano, J.S. Ananta, M. Zhong, **P. Decuzzi**. Engineered magnetic hybrid nanoparticles with enhanced relaxivity for tumor imaging. BIOMATERIALS. 34(31):7725-32, 2013.
29. T.-R. Lee, M. S. Greene, Z. Jiang; **P. Decuzzi**, W. Chen, W.K. Liu. Quantifying uncertainties in the microvascular transport of nanoparticles. BIOMECHANICS AND MODELING IN MECHANOBIOLOGY. 2013 Jul 20. [Epub ahead of print]
30. Lee TR, Choi M, Kopacz AM, Yun SH, Liu WK, **Decuzzi P.** On the near-wall accumulation of injectable particles in the microcirculation: smaller is not better. SCI REP. 3:2079. 2013.
31. Di Mascolo D, Lyon C, Aryal S, Ramirez MR, Wang J, Candeloro P, Guindani M, Hsueh WA, **Decuzzi P.** Rosiglitazone-loaded nanospheres for modulating macrophage-specific inflammation in obesity. J CONTROL RELEASE. 170(3):460-8. 2013
32. Stigliano C, Aryal S, de Tullio MD, Nicchia GP, Pascazio G, Svelto M, **Decuzzi P.** siRNA-Chitosan Complexes in Poly(lactic-co-glycolic acid) Nanoparticles for the Silencing of Aquaporin-1 in Cancer Cells. MOL PHARM. 10(8):3186-94; 2013.
33. Singh J, Hussain F, **Decuzzi P.** Role of differential adhesion in cell cluster evolution: from vasculogenesis to cancer metastasis. COMPUT METHODS BIOMECH BIOMED ENGIN. 2013 May 8. [Epub ahead of print]
34. Agus DB, Alexander JF, Arap W, Ashili S, Aslan JE, et al. A physical sciences network characterization of non-tumorigenic and metastatic cells. Physical Sciences - Oncology Centers Network, SCI REP. 3:1449. 2013
35. Key J, Aryal S, Gentile F, Ananta JS, Zhong M, Landis MD, **Decuzzi P.** Engineering discoidal polymeric nanoconstructs with enhanced magneto-optical properties for tumor imaging. BIOMATERIALS. 34(21):5402-10. 2013
36. Frieboes HB, Wu M, Lowengrub J, **Decuzzi P**, Cristini V. A computational model for predicting nanoparticle accumulation in tumor vasculature. PLOS ONE. 8(2):e56876. 2013
37. Cervadoro A, Giverso C, Pande R, Sarangi S, Preziosi L, Wosik J, Brazdeikis A, **Decuzzi P.** Design maps for the hyperthermic treatment of tumors with superparamagnetic nanoparticles. PLOS ONE. 8(2):e57332. 2013
38. Gentile F, Medda R, Cheng L, Battista E, Scopelliti PE, Milani P, Cavalcanti-Adam EA, **Decuzzi P.** Selective modulation of cell response on engineered fractal silicon substrates. SCI REP. 3:1461. 2013
39. G Sciumè, S Shelton, W G Gray, C T Miller, F Hussain, M Ferrari, **P Decuzzi** and B A Schrefler A multiphase model for three-dimensional tumor growth. NEW J. PHYS. 15 015005 2013
40. S.S. Hossain, Y.Zhang, X.Liang, F.Hussain, M.Ferrari, T.J.R. Hughes, **P. Decuzzi**. *in silico* Vascular Modeling for Personalized Nanoparticle Delivery. NANOMEDICINE - FUTURE MEDICINE. 8(3):343-57 2013.

41. V. Lo Schiavo, P. Robert, Z. Mishal, P.-H. Puech, F. Gentile, **P. Decuzzi**, P. Bongrand, L. Limozin. Transient adhesion mediated by ligand-receptor interaction on surfaces of variable nanotopography. INTERNATIONAL JOURNAL OF NANOTECHNOLOGY. 10:5/6/7, 404 - 418. 2013
42. Palange AL, Di Mascolo D, Singh J, De Franceschi MS, Carallo C, Gnasso A, **Decuzzi P.** Modulating the vascular behavior of metastatic breast cancer cells by curcumin treatment. FRONT ONCOL. :161. 2012
43. Sciumè G, Shelton SE, Gray WG, Millers CT, Hussain F, Ferrari M, **Decuzzi P**, Schrefler BA. Tumor growth modeling from the perspective of multiphase porous media mechanics. MOL CELL BIOMECH.;9(3):193-212. 2012
44. Gentile F, La Rocca R, Marinaro G, Nicastri A, Toma A, Paonessa F, Cojoc G, Liberale C, Benfenati F, Di Fabrizio E, **Decuzzi P.** Differential Cell Adhesion on MesoPorous Silicon Substrates. ACS APPL MATER INTERFACES. 4(6): 2903–2911 2012.
45. G. Adriani, M.D. de Tullio, M. Ferrari, F. Hussain, G. Pascazio, X. Liu, **P. Decuzzi**. Disk-like particles preferentially target the diseased vasculature. BIOMATERIALS. 33(22):5504-13 2012.
46. A.L. van de Ven, P. Kim, O'H. Haley, J.R. Fakhoury, G. Adriani, J. Schmulen, P. Moloney, F. Hussain, M. Ferrari, X. Liu, S.-H. Yun, **P. Decuzzi**. Rapid tumoritropic accumulation of systemically injected plateloid particles and their biodistribution. JOURNAL OF CONTROLLED RELEASE. 158(1):148-55 2012.
47. R. Sethi, J.S. Ananta, C. Karmonik, S.H. Fung, X. Liu, K. Li, M. Ferrari, L. Wilson, **P. Decuzzi**. Enhanced relaxivity of Gd-DTPA molecules geometrically confined in porous nanoconstructs. CONTRAST MEDIA AND MOLECULAR IMAGING. 7(6):501-8, 2012.
48. B. Godin Vilentchouk; C. Chiappini; S. Srimeenakshi; J.F. Alexander; K. Yokoi; M. Ferrari, **P. Decuzzi**; X. Liu. Discoidal NanoPorous Silicon Particles: fabrication, in vitro characterization and biodistribution in breast cancer bearing mice. ADVANCED FUNCTIONAL MATERIALS. 22, 4225–4235, 2012
49. W.K. Liu, T.-R. Lee, A.M. Kopacz, H. Kim, W. Stroberg, H.B. Man, D. Ho, M.-K. Kim, J.-H. Chung, **P. Decuzzi.**Multiscale Framework for Biomedical Simulation from MolecularDynamics to Continuum Mechanics. JOURNAL OF THE SERBIAN SOCIETY OF COMPUTATIONAL MECHANICS. 2011;5:61-80.
50. KojicM; VlastelicaI; **Decuzzi P**; GranikVT; FerrariM. A finite element formulation for the doublet mechanics modeling of microstructural materials. COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING. 2011: 200 1446 – 1454.
51. GentileF; BattistaE; AccardoA; ColuccioML; AsandeM; PerozzielloG; DasG; LiberaleC; De AngelisF; CandeloroP; **Decuzzi P**; Di FabrizioE. Fractal structure can explain the increased hydrophobicity of nanoporous silicon films. MICROELECTRONIC ENGINEERING 2011:882537 – 2540.
52. GentileF, ColuccioML, AccardoA, AsandeM, CojocG, MecariniF, DasG, LiberaleC, De AngelisF, CandeloroP, **Decuzzi P**, Di FabrizioE. Nanoporous-micropatterned-superhydrophobic surfaces as harvestingagents for few low molecular weight molecules. MICROELECTRONIC ENGINEERING. 2011:881749 – 1752.
53. Boso DP, Lee S, Ferrari M, Schrefler BA, **Decuzzi P**. Optimizing particle size for targeting diseased microvasculature: from experiments to artificial neural networks, INTERNATIONAL JOURNAL OF NANOMEDICINE. 2011:6 1517 – 1526
54. J.S. Ananta, B. Godin, R. Sethi, L. Moriggi, X. Liu, R.E. Serda, R. Krishnamurthy, R. Muthupillai, L. Helm, M. Ferrari, L.J. Wilson, **P. Decuzzi**. Geometrical Confinement of Gd-based Agents in Nanoporous Particles Enhances T1 Contrast. NATURE NANOTECHNOLOGY, 2010;5(11):815-21.
55. S.-Y. Lee, A. Zaske, T. Novellino, D. Danila, M. Ferrari,J. Conyers and **P. Decuzzi**. TNF-α in Systemic Vascular Dysfunction: an Atomic Force Microscopy Analysis. INTERNATIONAL JOURNAL OF NANOMEDICINE. 2011:6 179–195.
56. Gentile F, Das G, Coluccio ML, Mecarini F, Accardo A, Tirinato L, Tallerico R, Cojoc G, Liberale C, Candeloro P, **Decuzzi P**, De Angelis F, Di Fabrizio E. Ultra low concentrated molecular detection using super hydrophobic surface based biophotonic devices. MICROELECTRONIC ENGINEERING. 2010 :87;798-801
57. F. Gentile, L. Tirinato, E. Battista, F. Causa, C. Liberale, E.M. di Fabrizio and **P. Decuzzi**. Cells preferentially grow on rough substrates. BIOMATERIALS 2010, 31:7205-7212.

58. S.I. Ranganathan; D.M. Yoon; A. Henslee; M.B Nair; C. Smid; K.F. Kasper; E. Tasciotti; A.G Mikos; **P. Decuzzi**; Mauro Ferrari. Shaping the micromechanical behavior of multi-phase composites for bone tissue engineering. ACTABIOMATERIALIA, 2010; 6:3448-56
59. S.I. Ranganathan, **P Decuzzi**, L.T. Wheeler and M. Ferrari. Geometrical anisotropy in biphase particle reinforced composites. JOURNAL OF APPLIED MECHANICS. 2010:77;041017
60. Sakamoto JH, van de Ven AL, Godin B, Blanco E, Serda RE, Grattoni A, Ziemys A, Bouamrani A, Hu T, Ranganathan SI, Derosa E, Martinez JO, Smid CA, Buchanan RM, Lee SY, Srinivasan S, Meyn A, Tasciotti E, Liu X, **Decuzzi P**, Ferrari M.Enabling individualized therapy through nanotechnology.PHARMACOL RES. 2010; 62:57-89
61. Godin B, Gu J, Serda RE, Bhavane R, Tasciotti E, Chiappini C, Liu X, Tanaka T, **Decuzzi P**, Ferrari M, Tailoring the degradation kinetics of mesoporous silicon structures through PEGylation, J BIOMED MATER RES A. 2010;94(4):1236-43.
62. Lee SY, Ferrari M, **Decuzzi P**. Shaping nano-/micro-particles for enhanced vascular interaction in laminar flows.NANOTECHNOLOGY. 2009;20:495101.
63. **Decuzzi P**, Godin B, Tanaka T, Lee SY, Chiappini C, Liu X, Ferrari M.Size and shape effects in the biodistribution of intravascularly injected particles.J CONTROLLED RELEASE. 2010;141:320-7
64. **Decuzzi P**, Ferrari M.Modulating cellular adhesion through nanotopography.BIOMATERIALS. 2010;31:173-9.
65. Serda RE, Gu J, Bhavane RC, Liu X, Chiappini C,**Decuzzi P**, Ferrari M. The association of silicon microparticles with endothelial cells in drug delivery to the vasculature. BIOMATERIALS. 30:2440-8. 2009
66. **P. Decuzzi**, R. Pasqualini, W. Arap e M. Ferrari, Intravascular delivery of particulate systems: does geometry really matter?, PHARMACEUTICAL RESEARCH,26(1):235-43, 2009
67. T. Tanaka, **P. Decuzzi**, E. Tasciotti, M. Cristofanilli, F. Robertson, M. Ferrari, Nanotechnology for breast cancer therapy, BIOMEDICAL MICRODEVICES, 11(1):49-63. 2009
68. Lee SY, Ferrari M, **Decuzzi P**. Design of bio-mimetic particles with enhanced vascular interaction. J BIOMECH. 2009 Aug 25;42(12):1885-90
69. **P.Decuzzi**and M. Ferrari, The Receptor-Mediated Endocytosis of Nonspherical Particles, BIOPHYSICAL JOURNAL, 2008; 94(10):3790-3797
70. E.Tasciotti, K.Plant, R.Bhavane, X.Liu, A.D. Leonard, B.K. Price, M. Cheng,**P.Decuzzi**, J.M. Tour, F.Robertson, M.Ferrari, Mesoporous silicon particles as a multistage delivery system for imaging and therapeutic applications, NATURE NANOTECHNOLOGY, 2008, Vol. 3 No.3 pp151 – 157
71. F. Gentile, C. Chiappini, R.C. Bhavane, M. Peluccio, M-C Cheng, X. Liu, M. Ferrari, **P.Decuzzi**, Margination dynamics of non-spherical particles within micro-capillaries, JOURNAL OF BIOMECHANICS, 41 (2008), pp. 2312-2318;
72. **Decuzzi P**, Ferrari M.Design maps for nanoparticles targeting the diseased microvasculature.BIOMATERIALS. 2008;29(3):377-384
73. F.Gentile; A.Curcio; C. Indolfi; M. Ferrari and **P. Decuzzi**;Margination dynamics of spherical nanoparticles in a microfluidic chamber, JOURNAL OF BIONANOTECHNOLOGY, 15;6:9. 2008;
74. F. Gentile, M. Ferrari and **P. Decuzzi**;The transport of nanoparticles in blood vessels: the effect of vessel permeability and blood rheology, ANNALS OF BIOMEDICAL ENGINEERING, 2008;36(2):254-61;
75. Sakamoto J, Annapragada A, **Decuzzi P**, Ferrari M. Antibiological barrier nanovector technology for cancer applications.EXPERT OPIN DRUG DELIV.2007;4(4):359-69.
76. **P. Decuzzi**, and M. Ferrari; The role of specific and non-specific interactions in receptor-mediated endocytosis of nanoparticles, BIOMATERIALS; 2007;28(18):2915-22
77. **P. Decuzzi** and M. Ferrari; Fantastic Voyages –Nanodevices in development today will takediagnosis and treatment of disease directly to the source, MECHANICAL ENGINEERING MAGAZINE – COVER – October 2006
78. **P. Decuzzi**, A. Granaldi, G. Pascazio, The Dynamic Response of Microcantilever-basedsensors in a Fluidic Chamber, JOURNAL OF APPLIED PHYSICS, 101 (2): Art. No. 024303; 2007;
79. **P. Decuzzi**, F.Gentile, A. Granaldi, A.Curcio, F.Causa,C. Indolfi, P. Netti and M. Ferrari, Flow chamber analysis of size effects in the adhesion of spherical particles; JOURNAL OF NANOMEDICINE, 2007; 2(4), 1-8

80. **P. Decuzzi**, M. Ferrari, The adhesive strength of non-spherical particles mediated by specific interactions, BIOMATERIALS. 2006, 27(30):5307-14
81. **P. Decuzzi**, G. Demelio, G. Pascazio, V. Zaza, Bouncing Dynamics of Resistive Microswitches with an Adhesive Tip Abstract, JOURNAL OF APPLIED PHYSICS, 100, ART. NO. 024313, 2006
82. A. Granaldi and **P. Decuzzi**, The dynamic response of resistive microswitches: switching time and bouncing; JOURNAL OF MICROMECHANICS AND MICROENGINEERING 16, 1108-1115 2006
83. **P. Decuzzi**, F.Causa, M.Ferrari, P.A. Netti, The Effective Dispersion of NanoVectors within the MicroVasculature, ANNALS OF BIOMEDICAL ENGINEERING, 2006 Apr;34(4):633-41
84. Gissi R, **Decuzzi** P; The effect of shape and size in micro-/nanodimpies adhesion; JOURNAL OF APPLIED PHYSICS 98 (1): Art. No. 014310 JUL 1 2005
85. **Decuzzi** P, Lee S, Bhushan B, et al., A theoretical model for the margination of particles within blood vessels, ANNALS OF BIOMEDICAL ENGINEERING 33 (2): 179-190 FEB 2005
86. **Decuzzi** P, Lee S, Decuzzi M, et al.; Adhesion of microfabricated particles on vascular endothelium: A parametric analysis; ANNALS OF BIOMEDICAL ENGINEERING 32 (6): 793-802 JUN 2004
87. Affertante L, **Decuzzi** P; The effect of engagement laws on the thermomechanical damage of multidisk clutches and brakes; WEAR 257 (1-2): 66-72 JUL 2004
88. Bruno P, Cicala G, Losacco AM, P. **Decuzzi**; Mechanical properties of PECVD hydrogenated amorphous carbon coatings via nanoindentation and nanoscratching techniques; SURFACE & COATINGS TECHNOLOGY 180: 259-264 MAR 1 2004
89. **Decuzzi** P, Srolovitz DJ; Scaling laws for opening partially adhered contacts in MEMS; JOURNAL OF MICROELECTROMECHANICAL SYSTEMS 13 (2): 377-385 APR 2004
90. Carbone G, **Decuzzi** P; Elastic beam over an adhesive wavy foundation; JOURNAL OF APPLIED PHYSICS 95 (8): 4476-4482 APR 15 2004
91. **Decuzzi** P; Electro-stress migration induced instability at heterogenous interfaces, THIN SOLID FILMS 437 (1-2): 188-196 AUG 1 2003
92. Ciavarella M, **Decuzzi** P, Tagarielli VL, et al.; Simple formulas for thermoelastic stresses in TBC coatings; JOURNAL OF THERMAL STRESSES 26 (5): 409-422 MAY 2003
93. Afferrante L, Ciavarella M, **Decuzzi** P, et al.; Transient analysis of frictionally excited thermoelastic instability in multi-disk clutches and brakes; WEAR 254 (1-2): 136-146 JAN 2003
94. **Decuzzi** P, Demelio GP; Stress-driven morphological instability and catastrophic failure of microdevices; INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES 40 (3): 729-745 FEB 2003
95. Afferrante L, Ciavarella M, **Decuzzi** P, et al.; Thermoelastic instability in a thin layer sliding between two halfplanes: transient behaviour; TRIBOLOGY INTERNATIONAL 36 (3): 205-212 MAR 2003
96. **Decuzzi** P; Frictionally excited thermoelastic instability in viscoelastic and poroelastic media; INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES 44 (3): 585-600 MAR 2002
97. **Decuzzi** P, Demelio G; The effect of material properties on the thermoelastic stability of sliding systems; WEAR 252 (3-4): 311-321 FEB 2002
98. **Decuzzi** P, Ciaverella M, Monno G; Frictionally excited thermoelastic instability in multi-disk clutches and brakes; JOURNAL OF TRIBOLOGY-TRANSACTIONS OF THE ASME 123 (4): 865-871 OCT 2001
99. Ciavarella M, **Decuzzi** P, Monno G; The design of hydrodynamically lubricated journal bearings against crack propagation; JOURNAL OF STRAIN ANALYSIS FOR ENGINEERING DESIGN 36 (2): 245-250 MAR 2001
100. Ciavarella M, **Decuzzi** P; The state of stress induced by the plane frictionless cylindrical contact. I. The case of elastic similarity; INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES 38 (26-27): 4507-4523 JUN-JUL 2001
101. Ciavarella M, **Decuzzi** P; The state of stress induced by the plane frictionless cylindrical contact. II. The general case (elastic dissimilarity); INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES 38 (26-27): 4525-4533 JUN-JUL 2001
102. Ciavarella M, **Decuzzi** P, Monno G; Frictionally-excited thermoelastic contact of rough surfaces; INTERNATIONAL JOURNAL OF MECHANICAL SCIENCES 42 (7): 1307-1325 JUL 2000

103. Ciavarella M, **Decuzzi**P, Demelio G, et al.; The design of hydrodynamically lubricated journal bearings against yield (vol 34, pg 165173, 1999); JOURNAL OF STRAIN ANALYSIS FOR ENGINEERING DESIGN 34 (5): 371-371 SEP 1999
104. Ciavarella M, **Decuzzi** P, Demelio G, et al.; The design of hydrodynamically lubricated journal bearings against yield; JOURNAL OF STRAIN ANALYSIS FOR ENGINEERING DESIGN 34 (3): 165-173 MAY 1999

Peer-Reviewed Conferences:

105. R. Sethi, J. Ananta, X. Liu, J. Bankson, M. Ferrari, L. Wilson, and **P. Decuzzi**. Mesoporous Silicon Magnetic Nanoconstructs as superior MRI Contrast Agents. BIOMEDICAL ENGINEERING SOCIETY 2010 Austin 6-9 October 2010.
106. A. L. van de Ven, S. Lee, P. Kim, O. Haley, S-H. Yun, M. Ferrari, and**P. Decuzzi**. Integrated Rational Design of Nanoparticle Systems for Biomedical Applications. BIOMEDICAL ENGINEERING SOCIETY 2010 Austin 6-9 October 2010.
107. S. Lee, F. Gentile, A. Van de Ven, M. Ferrari, and **P. Decuzzi**. Size and Shape effects in the vascular dynamics of nano-Particle Systems (nPSs). BIOMEDICAL ENGINEERING SOCIETY 2010 Austin 6-9 October 2010.
108. F. Gentile, L. Tiritano, E. Battista, E. Di Fabrizio, **P. Decuzzi**. On the Mechanics of Cell Adhesion and Proliferation on Fractal Surfaces. BIOPHYSICAL SOCIETY 54TH ANNUAL MEETING. SAN FRANCISCO. FEB 19-24, 2010
109. **P. Decuzzi.** Nanogeometry in biological systems: playing with size and shape at the nanoscale. ASME NEMB2010. FEB. 7-10, 2010 HOUSTON, TX
110. M.D. de Tullio, G. Adriani, P. De Palma, G. Pascazio, **P. Decuzzi**, NumericalSimulation Of Arbitrarily Shaped Particle Transport In An Incompressible Flow. ASME NEMB2010. FEB. 7-10, 2010 HOUSTON, TX
111. S. Srinivasan, B. Godin-Vilentchouk, W. H Driessen, B. Proneth, M. G Ozawa,**P**. **Decuzzi**, W. Arap, R. Pasqualini, M. Ferrari,Multifunctional Si-Phage-Au Nanoassemblies For Targeted Cancer Theranostics – Design And In Vitro Performance. ASME NEMB2010. FEB. 7-10, 2010 HOUSTON, TX
112. B. Godin, J.S. Anantha, R. Sethi, R. Serda, M. Ferrari, LJ Wilson, **P. Decuzzi**. Immobilization of Ultra-Short Gadonanotubes in the Nanoporous Structure of Multistage Delivery Nanovector Enhances MRI Contrast Efficiency. ASME NEMB2010. FEB. 7-10, 2010 HOUSTON, TX
113. F. Gentile, G. Das, M.L. Coluccio, A. Accardo, L. Tirinato, R. Tallerico, F. Mecarini, C. Liberale, P. Candeloro, F. De Angelis, **P. Decuzzi**, E. Di Fabrizio,Breaking the Diffusion Limit: Micro-Nano- Hierarchical Structures Towards Single Molecule Detection. ASME NEMB2010. FEB. 7-10, 2010 HOUSTON, TX
114. **P. Decuzzi**; THE RATIONAL DESIGN OF PARTICULATE-BASED SYSTEMS FOR BIOMEDICAL IMAGING AND THERAPY.SEECCM 20092ND SOUTH-EAST EUROPEAN CONFERENCE ON COMPUATIONAL MECHANICS22-24 June 2009, Rhodes, Greece
115. G. Carbone; **P. Decuzzi**; S. Gorb. On the Performances of Mushroom-shaped Tips in Fibrillar Adhesives.SEECCM 20092ND SOUTH-EAST EUROPEAN CONFERENCE ON COMPUATIONAL MECHANICS22-24 June 2009, Rhodes, Greece
116. S-Y Lee, F. Gentile, M. Ferrari, **P. Decuzzi**: On the adhesive dynamics of nano-sized particulate systems in laminar flows.SEECCM 20092ND SOUTH-EAST EUROPEAN CONFERENCE ON COMPUATIONAL MECHANICS22-24 June 2009, Rhodes, Greece
117. V. Calo, T. Hughes, M. Ferrari, **P. Decuzzi**A mathematical tool to predict the efficacyof nanoparticles for cancer treatment and imaging. AMERICAN ASSOCIATION FOR CANCER RESEARCH AACR 2009.April 18-22, 2009, Denver, Colorado.
118. Klegerman ME, Zou YJ, Huang SL, Laing ST, Kim HG, Moody MR, Kee P, **Decuzzi P**, McPherson DD, Prediction of echogenic liposome targeting ability by relating adherence to acoustic reflectivity in an in vivo atheroma model, Arteriosclerosis, Thrombosis, and Vascular Biology Annual Conference 2008, Omni Hotel at CNN Center - Atlanta, USA, Apr 16-18, 2008
119. **P. Decuzzi** e M. Ferrari, Geometrical Effects in Cell-Particle Interactions at the Mesoscale, 8th. World Congress on Computational Mechanics (WCCM8), Venice (Italy) 30 June - 4 July 2008

120. V. Calo, T.J.R. Hughes, M. Ferrari, **P. Decuzzi**, Dynamics of Nano Particles in Patient Specific Blood Vessels, 8th. World Congress on Computational Mechanics (WCCM8), Venice (Italy) 30 June - 4 July 2008
121. M. Kojic, N. Filipovic, B. Stojanovic, I. Vlastelica, M. Ferrari, **P. Decuzzi**, The Margination Dynamics of Non-Spherical Particles in Laminar Flows, 8th. World Congress on Computational Mechanics (WCCM8), Venice (Italy) 30 June – 4 July 2008
122. M. Ferrari e **P. Decuzzi**, Rational design of nanovectors for medical therapy and imaging, Workshop IV: Optimal Transport in the Human Body: Lungs and Blood May 19 - 23, 2008
123. F. Gentile, A. Granaldi, M. Ferrari; **P. Decuzzi**, On the Adhesion of Particles to a Cell Layer Under Flow, European Nano Systems 2006, PARIS, France, 14-15 December 2006
124. F. Gentile, A. Granaldi, M. Ferrari; **P. Decuzzi**, On the Adhesion of Particles to a Cell Layer Under Flow, European Nano Systems 2006, PARIS, France, 14-15 December 2006
125. **P. Decuzzi**, F. Gentile, A. Granaldi, F. Causa, F. De Angelis, E. di Fabrizio; Design and Development of Nano-Vectors for Biomedical Applications; 19-23 November 2006; Politecnico di Bari, Bari; Italy
126. **Decuzzi P.**, Mathematical Design of Nanoparticles for Cancer Imaging and Therapy, TARGETED NANODELIVERY: ENABLING TARGETED THERAPIES AND NON-INVASIVE IMAGING, October 12-13, 2006, Baltimore
127. **Decuzzi P.**, Gentile F., Granaldi A, Risposta Dinamica di una Microtrave in Prossimità di una Superficie per Applicazioni in Diagnostica Biomedicale, CONVEGNO NAZIONALE AIAS 2006,Ancona 13-16 Settembre, 2006
128. Granaldi A, **Decuzzi P.**, Dynamic response of resistite microelectromechanical switches, CONVEGNO NAZIONALE AIAS 2005, Milano, 14-17 Settembre, 2005
129. Gentile F, **Decuzzi P.**, Ferrari M., Micromechanical analysis of biological tissues within the Doublet Mechanics theory, CONVEGNONAZIONALE AIAS 2005, Milano, 14-17 Settembre, 2005
130. **Decuzzi P.**, Capillary Adhesion at the Nanoscales, CONVEGNO NAZIONALE AIAS 2005, Milano, 14-17 Settembre, 2005
131. **Decuzzi P.,** Adhesion in Micro-Mechanical Devices, CONVEGNO NAZIONALE AIAS 2004, Bari, 31-2 Settembre, 2004
132. Bruno P, Cicala G, Losacco AM, **Decuzzi P**, Mechanical properties of PECVD hydrogenated amorphous carbon coatings via nanoindentation and nanoscratching techniques, E-MRS, 2003
133. Marengo A. e **Decuzzi P.**, A web-based virtual laboratori of mechanical engineering: the case of gear design, m-ICTE2003, SECOND INTERNATIONAL CONFERENCEONMULTIMEDIA AND ICTS IN EDUCATION, Badajoz - Spain, 13-16 Novembre 2002
134. L. Afferrante, M. Ciavarella, **P. Decuzzi**, G. Demelio, Transient Analysis of Thermoelastic contact in clutches and brakes, 3RD AIMETA INTERNATIONAL TRIBOLOGY CONFERENCE AITC 2002, Salerno, 18-20, 2002
135. **Decuzzi P.** e Monno G., The effect of disk thickness ratio on hot spotting in mutliple-disc clutches and brakes, 20TH INTERNATIONAL CONGRESS OF THEORETICAL AND APPLIED MECHANICS - *ICTAM2000*, Chicago, 27 Agu-2 Sept, 2000
136. Ciavarella M., **Decuzzi P**. e Monno G., Frictionally excited thermoelastic contact in solids with rough surfaces, presentato al XIII U.S. CONGRESS OF APPLIED MECHANICS; 1998
137. **P. Decuzzi**, G. Cuda, P. Tagliaferri, S. Venuta, M. Ferrari, Nano/Micro particles for *'Smart' Drug Delivery*, CONVEGNO NAZIONALE SIMEL, Lamezia Terme, 3-5 Ottobre, 2003
138. **P. Decuzzi,**Electromechanical instability driven nucleation of defects in electric lines, IGF 16, XVI ConvegnoNazionale, Catania, 20-22 Giugno, 2002
139. **P. Decuzzi**, R. Pizzi, *rumpling safe* desing of thermal barriers, CONVEGNO NAZIONALE AIAS 2002, Parma, 18-21 Settembre, 2002
140. **P. Decuzzi** e G. Demelio, Morphological alterations due to surface stress concentrators, XV CONVEGNO AIMETA, Taormina, 23-28 Settembre, 2001
141. **P. Decuzzi**, T. Soranno, P. Zagrodzki, Thermal Design of Sliding Systems by Domain Decomposition Techniques, CONVEGNONAZIONALE AIAS 2003, Salerno, 3-6 Settembre, 2003
142. L. Afferrante, **P. Decuzzi**, Effect of TEI on multidisk brakes and clutches, CONVEGNONAZIONALE AIAS 2003, Salerno, 3-6 Settembre, 2003
143. L. Afferrante, M. Ciavarella, **P. Decuzzi**, G. Demelio, Optimal desing if clutches and brakes against *hot spotting*, CONVEGNO NAZIONALE AIAS 2002, Parma, 18-21 Settembre, 2002

144. **P. Decuzzi**, M. Ciavarella e G. Demelio, The thermoelastic instability in aerospace applications, GIORNATE DI STUDIO SU "DANNEGGIAMENTO E FRATTURA DEI MATERIALI IN AMBIENTE AEROSPAZIALE", Roma, 26-27 Giugno, 2001
145. **P. Decuzzi**, The influence of visco-poroelasticbehavior of materials on the frictionally driver thermoelastic instability, XXX CONVEGNONAZIONALE AIAS, Alghero, 15-18 Settembre, 2001
146. M.Ciavarella, **P. Decuzzi**, V.L. Tagarielli e G. Demelio; Thermomechanical stresses in multilayered barriers, XXX CONVEGNO NAZIONALE AIAS, Alghero, 15-18 Settembre, 2001
147. **P. Decuzzi** e G. Monno, *Hot Spotting* and new desing criteria for clutches and brakes, XXIX CONVEGNO NAZIONALE AIAS, Lucca, 6-9 Settembre, 2000
148. M.Ciavarella, **P. Decuzzi** e G. Monno, Design of lubricated bearings against static failure, XXVIII CONVEGNO NAZIONALE AIAS, Vicenza, 8-11 Settembre, 1999
149. M.Ciavarella, **P. Decuzzi** e G. Monno, Conformal contact between cylindrical surfaces, XXVIII CONVEGNO NAZIONALE AIAS, Vicenza, 8-11 Settembre, 1999
150. M.Ciavarella, **P. Decuzzi** e G. Monno, Design of pressure-feed full-journal bearings against yielding, *II SEMINARIO ITALO-SPAGNOLO "PROGETTAZIONE E FLESSIBILITÀ DEI PRODOTTI INDUSTRIALI"* - ASSOCIAZIONE NAZIONALE DISEGNO DI MACCHINE (ADM), Marina di Equa, 24-26 Giugno, 1998
151. M.Ciavarella, **P. Decuzzi**, G. Demelio e G. Monno, The distributed dislocation theory and its application to 2D fracture and contact problems, XXVI CONVEGNO NAZIONALE DELL'ASSOCIAZIONE ITALIANA PER L'ANALISI DELLE SOLLECITAZIONI (AIAS), Catania, 3-6 Settembre, 1997

Books and Chapters in Books:

152. Driessen WH, Bronk LF, Edwards JK, Proneth B, Souza GR, **Decuzzi P**, Pasqualini R, Arap W. On the synergistic effects of ligand-mediated and phage-intrinsic properties during in vivo selection. Adv Genet. 2010;69:115-33.
153. Godin B, Driessen WH, Proneth B, Lee SY, Srinivasan S, Rumbaut R, Arap W, Pasqualini R, Ferrari M, **Decuzzi P**An integrated approach for the rational design of nanovectors for biomedical imaging and therapy. Adv Genet. 2010;69:31-64
154. Chapter 19 in "Modeling in Cancer Nanotechnology" within the M. Kojic, N. Filipovic, B. Stojanovic, N. Kojic COMPUTER MODELING IN BIOENGINEERING - THEORETICAL BACKGROUND, EXAMPLES AND SOFTWARE, J. Wiley and Sons
155. H. Frieboes, **P.Decuzzi**, J Sinek, M Ferrari, V Cristini, Computational Modeling of TumorBiobarriers: Implications for Delivery of Nano-based Therapeutics. In: Mingjun Zhang and Ning Xi (Eds.). Nanomedicine: A Systems Engineering Approach, Pan Stanford Publishing -- an affiliated company of the World Scientific Publishers, 2008.
156. J. Sakamoto, **P.Decuzzi**, F. Gentile, S.I. Rokhlin, L. Wang, and B. Xie, Nanomechanics and Tissue Pathology, Chapter 16, Vol. I, in "BioMEMS and Biomedical Nanotechnology", Springer, 4-volume set, Settembre 2006 - ISBN: 0387255613

Last updated: July 2015

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