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Decreto Rettore Università di Roma “La Sapienza” n 2824/2019 del 26/09/2019

EMANUELE RIZZUTO
Curriculum Vitae

Rome,
November, 3, 2019

Part I – General Information

Full Name	Emanuele Rizzuto
Spoken Languages	Italian, English

Part II – Education

Type	Year	Institution	Notes (Degree, Experience,…)
University graduation	2003	University of Rome “La Sapienza”	Master Degree (5 year course) in Mechanical Engineering. Thesis: “Dynamic analysis of viscoelastic properties of MLC/mIgf-1 transgenic mice Medial Collateral Ligaments". Final mark: 105/110.
PhD	2008	University of Rome “La Sapienza”	Cell Science and Morphogenesis. Thesis: “In vitro measuring contractile properties of murine skeletal muscle and viscoelastic behaviour of tendons”. Final mark: Excellent.
Fellowship	2017	Virginia Tech University (Blacksburg, VA, USA)	6 months as Research Scholar in Dr. R. De Vita’s STRETCH laboratory.
Fellowship	2008	Centre National de la Recherche Scientifique (Paris)	2 maonths as Research Fellow in Dr. Nadine Peyrieras / Dr. Philippe Vernier’s laboratory.
Licensure 01	2019	Italian Ministry of Education, University and Research	National scientific qualification to Full Professor of Measurements, SSD 09/E4, from 09/09/2019 to 09/09/2025.
Licensure 02	2017	Italian Ministry of Education, University and Research	National scientific qualification to Associate Professor of Measurements, SSD 09/E4, from 03/28/2017 to 03/28/2023
Licensure 03	2004	Association of Engineers	Licensure to Industrial Engineer

Part III – Appointments

IIIA – Academic Appointments

Start	End	Institution	Position
2019	Present	University of Rome La Sapienza	Member of the Academic Committee for the Ph.D. course in "Morphogenesis & Tissue Engineering
2019	Present	University of Rome La Sapienza	Invited Member of the Academic Committee for the Ph.D. course in Industrial and Management Engineering
2017	Present	University of Rome La Sapienza	Member of the faculty committee of Medical Biotechnology
2016	Present	University of Rome La Sapienza	Member of the faculty committee of Clinical and Biomedical Engineering
2018	2021	Department of Mechanical and Aerospace Engineering, University of Rome La Sapienza	Fixed-term research (RTD-A): *Misure innovative per la caratterizzazione funzionale dei tessuti biologici e ingegnerizzati in vitro: ruolo delle proprietà meccaniche dei tessuti nell'evoluzione di specifiche patologie tumorali e neurodegenerative*. SSD: ING-IND/12.
2012	2018	Department of Mechanical and Aerospace Engineering, University of Rome La Sapienza	Research fellow: *Contraction measurement of transgenic and ex-vivo engineered muscle fibers through the motor-neuron stimulation path.* SSD: ING-IND/12.
2010	2012	Department of Histology and Medical Embriology. University of Rome La Sapienza	Research fellow: *Biomechanical and phonotypical characterization of skeletal muscle from control and pathological animal model after treatment with stem cells*. SSD: BIO/17.
2008	2010	Department of Histology and Medical Embriology. University of Rome La Sapienza	Research fellow: *Study of the molecular mechanisms involved in sarcopenia and morpho-functional characterization of engineered-muscular tissues.* SSD: BIO/17.
2012	2013	DAHFMO-Unit of Histology and Medical Embryology of the University of Rome, La Sapienza	1 month collaboration: *Biomechanical analysis of dystrophic muscles functionality and statistical analysis of the results.*
2012	2012	Department of Mechanical and Aerospace Engineering, University of Rome La Sapienza	1 month collaboration: *Functional measurements of murine skeletal muscle and statistical analysis of the results.*

2011	2011	Department of Mechanical and Aerospace Engineering, University of Rome La Sapienza	1 month collaboration: *Design and realization of an electronic unit for signal manipulation of ultra-thin pressure sensors.*
2010	2010	Department of Histology and Medical Embriology. University of Rome La Sapienza	1 month collaboration: *Attenuating muscle wasting in cancer-associated cachexia: the role of mIGF-1".*
2008	2008	Department of Histology and Medical Embriology. University of Rome La Sapienza	1 month collaboration: *Statistical analysis of laboratory experiments.*
2007	2008	Department of Histology and Medical Embriology. University of Rome La Sapienza	5 month collaboration: *Molecular mechanism involved in muscle atrophy: role of paracrine and endocrine factors in atrophic phenotype modulation.*

IIIB – Other Appointments

Start	End	Institution	Position
2018	Present	Journal of Healthcare Engineering	Editorial Board Member
2018	2018	IEEE MeMeA 2018	Technical Program Committee member and session chair
2011	Present	IEEE Transaction on Instrumentation and Medicine; Measurement; Experimental Techniques; Journal of Hydrogen Energy; Industrial & Engineering Chemistry Research; Journal of the Mechanical Behavior of Biomedical Materials; Biotechnology & Bioengineering; International Journal of Molecular Sciences; Biotechnology Reports;	Reviewer

Part IV – Teaching experience

Year	Institution	Lecture/Course
From 2017-18	University of Rome La Sapienza	Course: *Mechanical Measurement,* for the faculty of Clinical Engineering
From 2017-18	University of Rome La Sapienza	Course: *Mechanical Bioengineering and Clinical Application,* for the faculty of Medical Biotechnologies
2016-17	University of Rome La Sapienza	Course: *Biomechanics and Tissue Engineering Laboratory* for the faculty of Biomedical Engineering
2007	University of Rome La Sapienza	Tutorial activity: *Tutoraggio corso di Misure Meccaniche e Termiche.*

From 2006	University of Rome La Sapienza	Supervisor of 18 students for the Bachelor Degree in Clinical Engineering and of 2 students for the Master Degree in Medical Biotechnologies; tutor of 2 PhD student in Morphogenesis & Tissue Engineering and of 2 PhD student in Industrial and Management Engineering; tutor of several students for the master degree in Biomedical and Mechanical Engineering and in Medical Biotechnologies

Part V - Society memberberships, Awards and Honors

Year	Title
2015	IEEE Instrumentation and Measurement Society Membership
2015	Interuniversity Institute of Myology Society Membership
2016	Poster winner of the Gibertini award at the XXIII congress of the National Electric and Electronic Group, Benevento (BN): *Sviluppo di una fascia toracica sensorizzata per la misura in real-time della frequenza cardiaca e respiratoria*
2003	Master thesis winner of the First Prize: National Instruments "Build your Future 2003".

Part VI - Funding Information [grants as PI-principal investigator or I-investigator]

Year	Title	Program	Grant value
2012-18	I: *PECASE*: *Advanced Treatment of Pelvic Floor Disorders through Discoveries in Elasticity and Viscoelasticity of Uterosacral and Cardinal Ligament*	NSF National Science Foundation	$478,277.00
2015-18	I: *UNS: Collaborative Research: Impact of Pregnancy on the Mechanics of Vaginal Tissue*	NSF National Science Foundation	$250,000.00
2016	I: *Sviluppo di un sistema per il monitoraggio e l'intervento di sicurezza in condizioni di funzionamento critiche delle batterie agli ioni di litio*	University of Rome La Sapienza	15.000€
2016	I: *Jets, Waves and Diffusion in Rotating Turbulent Flows*	University of Rome La Sapienza	12.000€
2013-16	I: *Modulation of dystrophic microenvironment to improve stem cell-mediated therapy*.	TELETHON	210.000€
2013-14	I: *Counteracting the hostile microenvironment to improve regeneration and stem cell-mediated therapy in dystrophic animal models: the role of Interleukin-6 (IL-6)*	Cenci-Bolognetti	60.000€

2012-15	I: *NATURA - Nanotech Approaches for The stUdy and cuRe of Als*	IIT-SAPIENZA	5.000.000€
2012-15	I: *Role of oxidative stress in the modulation of muscle homeostasis and therapeutic approach by antioxidants delivered by targeted liposomes*	FIRB Futuro In Ricerca	1.063.421€
2014	I: *Progettazione e sviluppo di un sistema a basso costo per la misura dei parametri critici e il monitoraggio in esercizio delle batterie al litio*	University of Rome La Sapienza	10.000€
2012	I: *Misura della funzionalità biomeccanica del muscolo diaframmatico in modelli murini di Sclerosi Laterale Amiotrofica*.	University of Rome La Sapienza	15.000€
2011	I: *Celle a combustibile SOFC ad alimentazione diretta con NH3: studio ed ottimizzazione del processo di reforming interno*	FARI University of Rome La Sapienza	7.000€
20010	I: *Caratterizzazione biomeccanica e funzionale senza contatto di fibre muscolari transgeniche e di costrutti cellulari ingegnerizzati mediante precursori miogenici*.	University of Rome La Sapienza	35.000€
2009-11	I: *Ruolo della nicchia tissutale nella rigenerazione muscolare.*	University of Rome La Sapienza	10.000€
2007-10	I: *Muscle control of motor neuron degeneration and survival in neuromuscular diseases*	TELETHON	230.000€
2007-10	I: *Study of the molecular and cellular mechanisms of sarcopenia: role of mIGF-1 and oxidative stress*	Cenci-Bolognetti	36.000€
2007-11	I: *Understanding and Combating age related muscle weakness*	7FP MYOAGE	11.200.000€
2007-10	I: *Studio dei meccanismi molecolari della sarcopenia*	University of Rome La Sapienza	30.500€
2006-08	I: *Il contributo del muscolo scheletrico alla patogenesi della Sclerosi Laterale Amiotrofica*	University of Rome La Sapienza	20.000€

Part VII – Research Activities

Keywords	Brief Description
Mechanical measurements Biomedical Engineering Industrial Engineering	My research activity concerns the study, the investigation and the design of new methods, testing protocols and instrumentations for the measurement of physical quantities in the field of Biomedical and Industrial Engineering. In particular, I am interested in the measurement of cells and tissues' biomechanical properties and their involvement in specific diseases and malignancies progression, as well as in the characterization of new devices for hydrogen production and energy storage.

Part VIII – Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
Papers [international]	42 (31 papers + 11 proceedings)	Scopus	2007	2019

Total Impact factor (referred to publication year)	129.90 (WoS)
Average Impact factor per product (only for the 31 papers)	4.19 (WoS)
Total Citations	1000 (Scopus)
Average Citations per Product	23.8 (total); 32 considering only the papers (Scopus)
Hirsch (H) index	15 (Scopus)
Normalized H index*	1.15 (Scopus)

*H index divided by the academic seniority.

Part IX– Selected Publications

1. S. Pisu, M. Cosentino, L. Apa, A. Musarò, E. Rizzuto, Z. Del Prete. Measuring the maximum power of an ex vivo engineered muscle tissue with isovelocity shortening technique. IEEE Transactions on Instrumentation and Measurement 2019, IF: 3.067, cit 0.
2. Huntington*, E. Rizzuto*, S. Abramowitch, Z. Del Prete, R. De Vita. Anisotropy of the Passive and Active Rat Vagina Under Biaxial Loading. Annals of Biomedical Engineering, 2019, *: co-first authors, IF: 3.474, cit 4.
3. L. Apa, E. Urciuoli, L. D'Alvia, B. Peruzzi, Z. Del Prete, E. Rizzuto. Development and mechanical validation of an in vitro system for bone cell vibration loading. In 2018 IEEE International Symposium on Medical Measurements and Applications (MeMeA), cit:0.
4. E. Pittella, E. Rizzuto, E. Piuzzi, Z. Del Prete, F. Fioriello, A. Maugeri, C. Sogos. Wearable heart rate monitoring as stress response indicator in children with neurodevelopmental disorder. In 2018 IEEE International Symposium on Medical Measurements and Applications (MeMeA), cit:0.
5. Pittella, E., Piuzzi, E., Rizzuto, E., Pisa, S., Del Prete, Z. Metrological characterization of a combined bio-impedance plethysmograph and spectrometer. Measurement: Journal of the International Measurement Confederation, 2018, IF: 2.791, cit 2.
6. Marrocco V., Fiore P., Benedetti A., Pisu S., Rizzuto E., Musarò A., Madaro L., Lozanoska-Ochser B., Bouché M. Pharmacological Inhibition of PKCθ Counteracts Muscle Disease in a Mouse Model of Duchenne Muscular Dystrophy. EbioMedicine, Vol. 16: 150-161, 2017, IF: 6.183, cit 10.

7. Molinari, F., Pin, F., Gorini, S., Chiandotto, S., Pontecorvo, L., Penna, F., Rizzuto, E., Pisu, S., Musarò, A., Costelli, P., Rosano, G., Ferraro, E. The mitochondrial metabolic reprogramming agent trimetazidine as an 'exercise mimetic' in cachectic C26-bearing mice. Journal of Cachexia, Sarcopenia and Muscle, 2017, IF: 12.511, cit 14.
8. Alessandrini, S., Rizzuto, E., Del Prete, Z. Characterizing different types of lithium ion cells with an automated measurement system. Journal of Energy Storage, 2016, cit 1.
9. Pigna, E. Berardi, E. Aulino, P. Rizzuto, E. Zampieri, S. Carraro, U. Kern, H. Merigliano, S. Gruppo, M. Mericskay, M. Li, Z. Rocchi, M. Barone, R. Macaluso, F. Di Felice, V. Adamo, S. Coletti, D. Moresi, V. Aerobic Exercise and Pharmacological Treatments Counteract Cachexia by Modulating Autophagy in Colon Cancer. Scientific Reports, 2016, IF: 4.259, cit 44.
10. Rizzuto E., Carosio S. and Del Prete Z. Characterization of a Digital Image Correlation system for small biological tissues dynamic strain measurements. Experimental Techniques, 2016, IF: 0.932, cit 3.
11. Rizzuto E, Carosio S., Faraldi M., Pisu S., Musarò A. and Del Prete Z. A DIC Based Technique to Measure the Contraction of a Skeletal Muscle Engineered Tissue. Applied Bionics and Biomechanics, 2016, IF: 0.943, cit 4.
12. Rizzuto E., Pisu S., Musarò A.and Del Prete Z. Measuring neuromuscular junction functionality in the $SOD1^{G93A}$ animal model of Amyotrophic Lateral Sclerosis. Annals of Biomedical Engineering, 2015, IF: 2.887, cit 7.
13. Rizzuto E., Palange P. and Del Prete Z. Characterization of an ammonia decomposition process by means of a multifunctional catalytic membrane reactor. International Journal of Hydrogen Energy, 2014, IF: 3.313, cit 18.
14. Carosio S., Barberi L., Rizzuto E., Nicoletti C., Del Prete Z.and Musarò A. Generation of eX vivo-vascularized Muscle Engineered Tissue (X-MET). Scientific Reports, 2013, IF: 5.078, cit 41.
15. Kuraitis D., Ebadi D., Zhang P., Rizzuto E., Vulesevic B., Padavan D.T., Al Madhoun A., McEwan K.A., Sofrenovic T., Nicholson K., Whitman S.C., Mesana T.G., Skerjanc I.S., Musarò A., Ruel M. and Suuronen E.J. Injected matrix stimulates myogenesis and regeneration of mouse skeletal muscle after ischaemic injury. European Cells and Materials, 2012, IF: 4.558, cit 21.

Roma, November 3, 2019

Emanuele Rizzuto