

# Curriculum Vitae et studiorum

## Personal information

First name / Surname **Matteo Avolio**

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Nationality Italian

Place and date of birth Udine (IT), 19.01.1992

Gender Male

## Present appointment

**Ph.D. student in Physics (01.10.2016-present)**, University of Pavia (IT).  
*Research Activity:* investigation of optimal characteristics that Magnetic Nanoparticles (MNPs) should have for safe and efficient application of Magnetic Fluid Hyperthermia to patients; implementation of models capable to correlate the Specific Absorption Rate (SAR) of MNPs with their microscopic characteristics; characterization of MNPs relaxometric properties by the Nuclear Magnetic Resonance (NMR) technique.  
*Advisors:* Prof. Alessandro Lascialfari, Prof. Maurizio Corti

## Education

### **M.Sc. in Physical Sciences (2014-2016)**

Achieved on 21.07.2016, with a final score of 110/110 cum laude  
University of Pavia, Department of Physics, Via Bassi 6, 27100 Pavia (Italy)

*Principal subjects:* Physics, Medical Physics, Radiobiology, Ionizing Radiations, Radioprotection

*Final dissertation:* "Optimization of microscopic properties of nanoparticles for therapy with magnetic hyperthermia."

*Thesis Supervisor:* Prof. Alessandro Lascialfari

*Thesis Co-Supervisors:* Prof. Maurizio Corti, Dr. Marco Cobianchi

### **B.Sc. in Physics (2011-2014)**

Achieved on 19.09.2014, with a final score of 110/110 cum laude  
University of Trieste, Department of Physics, Piazzale Europa, 34127 Trieste (Italy)

*Principal subjects:* Physics, Maths, Informatics, Chemistry

*Final dissertation:* "Study of the energy dependence of the Contrast Recovery Coefficient (CRC) and Contrast to Noise Ratio (CNR) in the Y-90 bremsstrahlung images acquired with SPECT-CT".

*Thesis Supervisor:* Dr. Faustino Bonutti

	<p><b>High school Diploma in scientific and technological studies</b>  Achieved in June 2011, with a final score of 100/100 cum laude  Liceo scientifico tecnologico, ISIS Arturo Malignani, Via Leonardo da Vinci, 33100 Udine (Italy)  <i>Principal subjects:</i> Biology, Chemistry, Physics, Science, Maths, Informatics, English, biological and chemical laboratory activities.</p>
<b>Membership</b>	<p><b>Member of the team of the Coordinated Research Project funded by the IAEA</b> (International Atomic Energy Agency) named "Optimization of SPECT/CT and PET/CT image acquisition protocols, focusing on patients treated with 90-Y".</p> <p><b>Istituto Nazionale di Fisica Nucleare (INFN):</b> member as PhD student of the Group 5, Section of Pavia, from 07/11/2016 to 30/06/2020.</p>
<b>Awards</b>	<p><u>April 20<sup>th</sup> 2017</u>  Winner of the "Giulio Musitelli" prize for the best Master Degree Thesis in Physical Sciences on a topic of Applied Physics in the period January 1<sup>st</sup>, 2015 – December 31<sup>th</sup>, 2016, University of Pavia.</p>
<b>Research experience and training</b>	<p><u>June 19<sup>th</sup> – June 23<sup>th</sup>, 2017</u>  <b>IEEE Magnetics 2017 Summer School</b>  Palacio de la Magdalena, Santander, Spain</p> <p><u>June 6<sup>th</sup> 2017</u>  <b>Workshop "Ricerca e Nanomedicina, 2<sup>nd</sup> ed."</b>  Centre for Health and Technologies (CHT), University of Pavia</p> <p><u>April 27<sup>th</sup> – April 28<sup>th</sup>, 2017</u>  <b>RADIOMAG Annual Action Conference and MC Meeting (COST TD1402)</b>  Univesidad del País Vasco, Bilbao, Spain</p> <p><u>February 15<sup>th</sup> 2017</u>  <b>Workshop on Magnetism in Medicine</b>  Firenze, Italy</p> <p><u>February to May 2017</u>  <b>Course "Linguaggi, problemi metodi della comunicazione della ricerca scientifica" ("Languages, problems and methods of scientific research communication")</b>, modules "Presentation Making" and "Public Speaking"  Collegio Nuovo – Fondazione Sandra e Enea Mattei, Scuola di Alta Formazione Dottorale (SAFD), University of Pavia , Italy</p> <p><u>January 25<sup>th</sup> – January 27<sup>th</sup>, 2017</u>  <b>Course "Entrepreneurship for Physicists: an introduction"</b>  Department of Physics, University of Pavia, Pavia, Italy</p> <p><u>October 18<sup>th</sup> 2016</u>  <b>Nanomedicine Symposium CEN@UniMiB: Towards translation and European networking</b>  Università Milano-Bicocca, Milan, Italy</p>

	<p><u>June 1<sup>st</sup> – June 12<sup>th</sup>, 2015</u> (60 hours)  <b>DoReMi, European Network of Excellence, Training course on “Modelling radiation effects from initial physical events”</b>. Learning modelling approaches and techniques in radiation biophysics and radiobiology research, from basic mechanisms to applications.  Department of Physics, University of Pavia, Pavia, Italy</p>
	<p><u>March to September 2014</u> (7 months)  <b>Training for the preparation of B.Sc. degree thesis</b>  Health Physics and Nuclear Medicine, University Hospital Santa Maria della Misericordia, Udine, Italy</p>
<b>Training (others)</b>	<p><i>3 days visit to CERN – European Organization for Nuclear Research</i>  Geneva (CH), May 2014</p> <p><i>2 days visit to LNGS – Gran Sasso National Laboratory</i>  L’Aquila (IT), January 2013</p>
<b>Teaching experiences</b>	<p><u>November to December 2015</u>  Tutoring activities for the students of the course “Medical Physics” of the Faculty of Medicine and Surgery, University of Pavia, Pavia (IT)</p>
<b>Publications</b>	<p>M. Cobianchi, A. Guerrini, <u>M. Avolio</u>, C. Innocenti, M. Corti, P. Arosio, F. Orsini, C. Sangregorio, A. Lascialfari, “<b>Experimental determination of the frequency and field dependence of Specific Loss Power in Magnetic Fluid Hyperthermia</b>”, <i>Journal of Magnetism and Magnetic Materials</i> 444 (2017) 154–160</p> <p>F. Bonutti, <u>M. Avolio</u>, G. Magro, A. Cecotti, E. Della Schiava, E. Del Do, F. Longo, M.Y. Herassi, F. Bentayeb, M. Rossi, G. Ferretti, O. Geatti and R. Padovani, “<b>Optimization of the image contrast in SPECT-CT bremsstrahlung imaging for Selective Internal Radiation Therapy of liver malignancies with Y-90 microspheres</b>”, <i>arXiv preprint arXiv:1509.08857</i>.</p>
<b>Computer skills and competences</b>	<p>Operating Systems: excellent knowledge of Windows and MAC.  Application packages: Basic package of Microsoft Office and iWORK.  Good ability in internet browsing.  Good knowledge of the following programming languages: Turbo Pascal, Fortran and C++.  Basic knowledge of MCNP code.  Great ability in using LaTeX typesetting system.</p>
<b>Mother Tongue</b>	<b>Italian</b>
<b>Other language(s)</b>	<b>English</b> (good knowledge)
	<p>High Intermediate level English Certificate, “CES/SWANDEAN School of English”, 20 lessons, London, 26.02 to 03.03.2009.</p>