

Curriculum Vitae

Personal Information

Title **Dr. rer. nat.**
Name, Surname **Riccardo, Dal Bello**
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Nationality **Italian**
Date and place of birth **September 28th, 1992 in Spilimergo, Italy**
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Current position

since Feb 2022 **Medical Physicist and Postdoc fellow - Zurich University Hospital, Switzerland**

- Primary expertise area: Radiation therapy, external beam therapy
- Research topics: synthetic CT, automated planning and electron flash radiotherapy

Education

Dec 17th 2019 **PhD in Physics (Magna cum laude) - Heidelberg University, Germany**

- Thesis title: Nuclear prompt gamma spectroscopy for range verification in ion-beam therapy
- Scholarship: International Max Planck Research School for Quantum Dynamics, Heidelberg
- Institute: German Cancer Research Center, Heidelberg
- Supervisor: Prof. Joao Seco

Oct 20th 2016 **Master in Physics (1.1) - Heidelberg University, Germany**

- Thesis title: Degradation of proton and carbon Bragg peaks due to density inhomogeneities
- Scholarship: German Academic Exchange Service DAAD, Bonn
- Institute: German Cancer Research Center, Heidelberg
- Supervisor: Prof. Oliver Jäkel and PD Dr. Steffen Greilich

Jul 18th 2014 **Bachelor in Physics (110/110 cum laude) - Trieste University, Italy**

- Thesis title: Characterization of a CCD detector in TDI for medical imaging
- Scholarship: Collegio universitario Luciano Fonda, Trieste
- Institute: Elettra synchrotron, Trieste
- Supervisor: Prof. Fulvia Arfelli and Dr. Luigi Rigon

Jul 9th 2011 **High School Diploma (98/100) - Scientific Lyceum Michelangelo Grigoletti, Italy**

- High school certificate: *Maturità Scientifica*

Further Education

Dec 13th 2019 **Master Advanced Studies Medical Physics - Heidelberg University, Germany**

- Primary expertise area: Radiation therapy
- Specialization area: Particle therapy
- Mentor: Prof. Oliver Jäkel

Nov 4th 2021 **Medical Physics Board Certification Exam (SSRMP)**

Work Experience

- Feb 2020 - Jan 2022 **Medical Physicist Resident - Zurich University Hospital (USZ), Switzerland**
- Primary expertise area: Radiation therapy
 - Specialization area: External beam radiotherapy
 - Additional areas covered: MR-Linac radiotherapy, Intra-operative radiotherapy
 - Mentor: Dr. Mariangela Zamburlini
- Nov 2018 - Dec 2019 **Medical Physicist Assistant - Heidelberg Ion-Beam Therapy Center (HIT), Germany**
- Primary expertise area: Radiation therapy
 - Specialization area: Proton and heavy ion beam radiotherapy
 - Additional areas covered: Machine and patient quality assurance
 - Mentor: Prof. Oliver Jäkel
- Nov 2016 - Dec 2016 **Research Assistant - German Cancer Research Center (DKFZ), Germany**
- Primary expertise area: Radiation therapy
 - Specialization area: Carbon ion beam radiotherapy
 - Additional areas covered: Monte Carlo simulations of Bragg Peaks in lung tissue
 - Mentor: PD Dr. Steffen Greilich
- Jul 2015 - Sep 2015 **Research Assistant - Helmholtz Centre for Heavy Ion Research (GSI), Germany**
- Primary expertise area: Radiation therapy
 - Specialization area: Proton and heavy ion beam radiotherapy
 - Additional areas covered: Inverse problems for optimization of treatment plans
 - Mentor: Dr. Christian Graeff
- Oct 2013 - Nov 2013 **Research Assistant - National Institute for Nuclear Physics (INFN), Italy**
- Primary expertise area: Particle and detector physics
 - Specialization area: Cosmic ray physics
 - Additional areas covered: Calibration of the imaging calorimeter of the satellite PAMELA
 - Mentor: Dr. Emiliano Mocchiutti

Selected contributions

- 2022 **Research paper**
- Synthetic computed tomography for low-field magnetic resonance-guided radiotherapy in the abdomen
 - Lapaeva, M. et al., Phys Imaging Radiat Oncol 2022 Nov 28;24:173-179. doi: 10.1016/j.phro.2022.11.011
- 2022 **US patent**
- Detector and method for tracking an arrival time of single particles in an ion beam
 - Seco, J. et al., USPTO Nr. US11331519B2
- 2021 **Research paper**
- In-field stereotactic body radiotherapy (SBRT) reirradiation for pulmonary malignancies as a multicentre analysis of the German Society of Radiation Oncology (DEGRO)
 - John C., Sci Rep. 2021 Feb 25;11. doi: 10.1038/s41598-021-83210-3
- 2021 **Book chapter**
- Chapter 27: Prompt Gamma Detection for Proton Range Verification
 - Darafsheh, A., ISBN: 9781138543973, CRC PRESS
- 2020 **Research paper**
- Prompt gamma spectroscopy for absolute range verification of ^{12}C ions at synchrotron-based facilities
 - Dal Bello, R. et al., 2020 Phys. Med. Biol. 65 095010. doi: 10.1088/1361-6560/ab7973

Additional activities

- 2021 - Present **Scientific committee**
- ESTRO Physics Workshop MR-guided radiotherapy (edition 2022)
 - European Congress of Medical Physics ECMP (edition 2022)
 - Joint Conference of the ÖGMP, DGMP and SGSMP (edition 2021)
- 2018 - Present **Reviewer for journals**
- Cancers - Open access journal of oncology
 - Physica Medica - European Journal of Medical Physics
 - Medical Physics - Journal of the American Association of Physicists in Medicine
 - NIMA - Section A of Nuclear Instruments and Methods in Physics Research
- 2017 - Present **Teaching and tutoring**
- Teaching medical students (course Mantelstudium Medizin Technik) at Zurich University
 - Tutoring laboratory courses for physics bachelor at Heidelberg University
 - Co-supervision of bachelor and master students in physics towards their thesis
- 2012 - 2014 **President of student association at University of Trieste, Italy**
- Management of accounting and coordination of events (up to 200 participants)
- 2008 - 2019 **Football referee**
- AIA (Associazioni Italiana Arbitri), Italy
 - DFB (Deutscher Fußball Bund), Germany

Research grants

- 2022 **SASRO Research Grant**
- Amount: 5'000 CHF
 - Project: Development of quality assurance of synthetic CT in MR-only planning

Skills

- Coding **Programming languages**
- Python, C++, C#
- Simulations **Monte Carlo for radiation transport problems**
- FLUKA, GATE/Geant4, TRAX-CHEM
- Analysis **Techniques to process experimental or simulated data**
- ROOT framework, digital signal processing, modelling detector response function
- Tools **Software for radiation oncology departments**
- Aria, ESAPI scripting, MIM, ViewRay TPS

Languages

- Mother tongue **Italian**
- Primary work language **English**
- Certificate: TOEFL: 107/120 (09.04.2016)
- Secondary work language **German**
- Certificate: Heidelberg University: level C1.1 (01.02.2019)