

PERSONAL  
INFORMATION

Francesco Tommasino

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Gender Male | Date of birth 10/03/1985 | Nationality Italian

## CURRENT POSITION

Since 2<sup>nd</sup> March 2020 Assistant Professor (Ricercatore a Tempo Determinato di tipo B)  
University of Trento, Department of Physics

## PREVIOUS POSITIONS

Since January 2016 Junior Researcher (Ricercatore a Tempo Determinato di tipo A) University of  
To 1<sup>st</sup> March 2020 Trento, Department of Physics

Since 1<sup>th</sup> May 2015 Visiting Researcher at INFN-TIFPA (Trento, Italia)  
To 31<sup>st</sup> December 2015 Research Activity in collaboration with the Trento Proton Therapy  
Centre.

Since 1<sup>st</sup> May 2014 Post-Doc  
To 31<sup>st</sup> December 2015 GSI Helmholtz Institute for Heavy Ion Research - Darmstadt (Germany).  
Research Topic: "Radiobiological Aspects of treatment planning with protons or  
heavier ions".

## EDUCATION

Since 2<sup>nd</sup> April 2011 PhD  
To 23<sup>rd</sup> June 2014 Technical University of Darmstadt (Germany) / GSI Helmholtz Institute for Heavy  
Ion Research - Darmstadt (Germany)  
Thesis: "DNA damage induction and processing following exposure to low and  
high LET radiation: the role of micrometre-scale clustering in higher-order  
chromatin structures".

Since 20th February 2008 Master Degree in Biomedical Engineering  
To 17th January 2011 University of Rome "Sapienza"  
Grade: 110/110 cum laude  
Thesis: "Characterization of a beam monitor device for carbon ion hadrontherapy".

**PERSONAL SKILLS**

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Mothertongue Italian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Listening	Reading
English	C1	C2	C1	C1	C2
German	B1	B1	A2	B1	B1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user  
 Common European Framework of Reference for Languages

**COMMUNICATION SKILLS**

- Good communication and presentation skills gained through active participations to international conferences and scientific meetings.
- Excellent technical and scientific writing skills acquired with the preparation of scientific papers and experimental reports.

**ORGANIZATIONAL / MANAGEMENT SKILLS**

- Good management and collaboration skills acquired in the framework of scientific collaborations (e.g. FOOT, MoVe IT).
- Good skills in the coordination of the scientific activity of small research groups.
- Good organizational skills gained previously through the organization of small sport and social events, and more recently through the organization of international scientific meetings and workshops.

**PROFESSIONAL SKILLS**

- Biophysical modelling of radiation effects, Monte Carlo, particle treatment planning, NIM/VME electronics, radiation detection, data analysis, radiation biology.
- Good team player skills developed thanks to the long lasting practice of team-sport activities, and further improved in the context of scientific collaborations and experimental activities.
- Problem solving capabilities gained through the experimental work performed during the Master Thesis and especially during the PhD years.
- Open-minded person, used to work in interdisciplinary and multi-cultural environments.

**COMPUTER SKILLS**

- Good knowledge of Windows and Linux operating systems.
- Good knowledge of C and C++ programming languages.
- Good command of Microsoft Office™ tools.
- Good knowledge of technical and scientific software (ROOT, Mathematica, Matlab, ImageJ).
- Monte Carlo codes: Geant4, FLUKA.

**DRIVING LICENSE**

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**ADDITIONAL INFORMATION**

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Publications  
 Scientific Activity  
 Grants  
 Teaching  
 Conferences  
 Awards  
 Memberships  
 Courses  
 Other

**Publications:**

- Cartechini et al., Proton pencil beam scanning reduces secondary cancer risk in breast cancer patients with internal mammary chain involvement compared to photon radiotherapy, *Radiation Oncology* (2020).
- Widesott et al, Proton or photon radiosurgery for cardiac ablation of ventricular tachycardia? Breath and ECG gated robust optimization, *Phys Med* (2020).
- Missiaggia et al., Microdosimetric measurements as a tool to assess potential in- and out-of-field toxicity regions in proton therapy, *Phys Med Biol* (2020).
- Pisciotta et al., Evaluation of proton beam radiation-induced skin injury in a murine model using a clinical SOBP, *Plos One* (2020).
- Catalano et al., Transversal dose profile reconstruction for clinical proton beams: A detectors inter-comparison, *Phys Med* (2020).
- Righetto et al., Accurate proton treatment planning for pencil beam crossing titanium fixation implants, *Phys Med* (2020).
- **Tommasino** et al., Clinical implementation in proton therapy of multi-field optimization by a hybrid method combining conventional PTV with robust optimization, *Phys Med Biol* (2020).
- Palma et al., Modelling the risk of radiation induced alopecia in brain tumor patients treated with scanned proton beams, *Radiother Oncol* (2020).
- Dionisi et al., Organs at risk's tolerance and dose limits for head and neck cancer re-irradiation: A literature review, *Oral Oncology* (2019).
- Fellin et al., Potential skin morbidity reduction with intensity-modulated proton therapy for breast cancer with nodal involvement, *Acta Oncologica* (2019).
- **Tommasino** et al., A new facility for proton radiobiology at the Trento proton therapy centre: Design and implementation, *Physica Medica* (2019).
- **Tommasino** et al., Study for a passive scattering line dedicated to radiobiology experiments at the Trento proton therapy center, *Radiat Prot Dosim* (2019).
- **Tommasino** et al., Quantification of Acute Skin Toxicities in Breast Cancer Patients Undergoing Adjuvant Proton vs. Photon Radiation Therapy A single institutional experience. In regard to DeCesaris et al, accepted for publication in *Int J Rad Oncol Biol Phys* (2019).
- Montesi et al., Ion charge separation with new generation of nuclear emulsion films, *Open Physics* (2019).
- Morrocchi et al., Development and characterization of a  $\Delta E$ -TOF detector prototype for the FOOT experiment, *NIM-A* (2019).
- Fellin et al., Potential skin morbidity reduction with intensity-modulated proton therapy for breast cancer with nodal involvement, *Acta Oncologica* (2019).
- Rizzo et al., A compact Time-Of-Flight detector for space applications: The LIDAL system, *NIM-A* (2018).
- **Tommasino** et al., Impact of dose engine algorithm in pencil beam scanning proton therapy for breast cancer, *Physica Medica* (2018).
- Morone et al., A compact Time-Of-Flight detector for radiation measurements in a space habitat: LIDAL–ALTEA, *NIM-A* (2018).
- Brownstein et al., Characterizing the Potency and Impact of Carbon Ion Therapy in a Primary Mouse Model of Soft Tissue Sarcoma, *Mol Cancer Ther* (2018).
- **Tommasino** et al., Proton beam characterization in the experimental room of the Trento Proton Therapy facility, *NIM-A* (2017).

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- **Tommasino** et al., Model-based approach for quantitative estimates of skin, heart, and lung toxicity risk for left-side photon and proton irradiation after breast-conserving surgery, *Acta Oncologica* (2017).
- **Tommasino** et al., Increasing the power of tumour control and normal tissue complication probability modelling in radiotherapy: recent trends and current issues, *Translational Cancer Research* (2017).
- Cerri et al., Hibernation for space travel: Impact on radioprotection, *Life Sciences in Space Research* (2016).
- **Tommasino F.**, Experimental and modelling studies for the validation of the mechanistic basis of the Local Effect Model, *Il Nuovo Cimento C* (2016).
- Mirsch et al., Direct Measurement of the 3-Dimensional DNA lesion distribution induced by energetic charged particles in a mouse model tissue, *PNAS* (2015).
- **Tommasino** et al., New ions for particle therapy, *International Journal of Particle Therapy* (2015).
- **Tommasino** et al., Induction and processing of the radiation-induced gH2AX signal and its link to the underlying pattern of DSB: a combined experimental and modelling study, *PLOS One* (2015).
- Durante et al., Modelling combined chemotherapy and particle therapy for locally advanced pancreatic cancer, *Frontiers in Oncology* (2015).
- **Tommasino** et al., Application of the Local Effect Model to predict DNA Double-Strand Break rejoining after photon and high LET irradiation, *Radiat Prot Dosim* (2015).
- **Tommasino F** and Durante M, Proton Radiobiology, *Cancers* (2015).
- **Tommasino** et al., A DNA double-strand break rejoining model based on the Local Effect Model, *Radiat Res* (2013).

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### Scientific Activity and Responsibility

- Local Coordinator for the FOOT (FragmentatiON Of Target) INFN project (since 2017), Run Coordinator for Experimental Campaign 2019 at GSI.
- Member of INFN MoVe IT (Modelling and Verification for Ion Therapy) CSN 5 Call Project.
- PI of the Caritro-financed project “Development of a 4D phantom for dosimetric measurements of moving targets in hadron therapy”.
- Contact Person for the Experimental Facility at the Trento Proton Therapy Centre and Coordinator of the Program Advisory Committee (PAC) for the evaluation of beam time requests.

### Grants:

- Caritro Foundation “Bando Ricerca e Sviluppo Economico 2017” – “Development of a 4D phantom for dosimetric measurements of moving targets in hadron therapy”
- MIUR funding for basic research activities “Finanziamento delle Attività Base di Ricerca” 2017

### Teaching:

- AA 2016-17, 2017-18, 2018-19: *Statistical Methods for Experimental Sciences*, CIBIO, University of Trento.
- AA 2017-18, 2018-19: Co-lecturer *Radiation Biophysics* course, Dep. Physics, University of Trento.
- AA 2016-17: *Physics Laboratory*, Dep. Engineering, University of Trento.
- AA 2015-16: *Exercise Classes for General Physics I*, Dep. Engineering, University of Trento.
- Lecturer for the Italian Radiobiology Society (AIRB) Training Courses, 2016 and 2017, Trento.

### Conferences:

- Particle Therapy Co-Operative Group Annual Meeting 2019 Manchester (UK) – Oral Poster.
- 38° Congress of the European Society for Radiotherapy and Oncology (ESTRO) 2019 Milano – Poster.
- 37° Congress of the European Society for Radiotherapy and Oncology (ESTRO) 2018 Barcelona – Oral Poster.
- X Congress of the Italian Association of Medical Physics (AIFM) 2018 Bari – Talk
- International Symposium on Microdosimetry 2017 Venice – Talk.
- Annual Congress of Italian Physics Society 2017 Trento – Invited Talk.
- International Symposium on Ion Therapy 2016 Milano – Invited Talk.
- Particle Therapy Co-Operative Group Annual Meeting 2016 Praga (Czech Republic) – Poster.
- Annual Congress of Italian Physics Society 2015 Rome – Talk.
- International Symposium on Microdosimetry 2013 Treviso – Poster.
- GBS Annual Meeting 2013 Darmstadt (Germany) – Poster.
- GBS Annual Meeting 2012 Munich (Germany) – Poster.

### Awards:

- Italian Society for Radiation Research (SIRR): Travel Grant Microdosimetry 2017.
- Italian Physics Society (SIF) 2016: Best Communication in Biophysics.
- GBS Annual Meeting 2012: Travel Grant for Young Scientists.
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**Memberships:**

- Associated INFN member since May 2015.
- Member of the Italian Society for Radiation Research (SIRR) since May 2017.
- Member of the Graduate School 1657 “Molecular and cellular response to ionizing radiation” funded by the Deutsche Forschungsgemeinschaft, 2011-2014.
- Member of the HGS HIRe - Helmholtz Graduate School for Hadron and Ion Research, 2011-2014.

**Courses:**

- Radiation Biophysics, TUD Darmstadt, Summer Semester 2011.
- Short Course in Statistics and Testing Hypothesis – Technical University of Darmstadt 15-16 November 2012.
- Medical Physics and Radiotherapy – Department of Radiotherapy and Oncology, University Hospital Frankfurt am Main 19<sup>th</sup> July 2013.

**Other:**

- Organizing Committee VI International Geant4 School (2018) Trento.
- Supervisor of 3 Master and 1 Bachelor Degrees in Physics, Co-Supervisor of 3 Master Degrees in Physics.
- Tutor Activity for the Master Module in Radiation Biophysics, TUD-GSI Institute (2012-2014).
- Active involvement in scientific dissemination events, involving both schools and adults, in collaboration with the University of Trento, TIFPA and the Trento Proton Therapy center.
- Referee for peer-reviewed international Journals: Int J Part Ther, Med Phys, Phys Med Biol, Phys Medica, Frontiers in Oncology, Cancers, Int J Radiat Oncol Biol Phys, Radiat Oncol, Scientific Reports, Oncotargets, JINST, Nucl Instr Meth A, Rad Envir Biophys, Cancer Research and Management, Plos One, IEEE Trans Radiat and Plasma Medical Sciences.