

Name	<b>MARCHI, TOMMASO</b>
Address (I)	
E-mail	<b>tommaso.marchi@Inl.infn.it</b>
Citizenship	<b>ITALIAN</b>
Birth date	
Tax Code	
Marital status	
ResearcherID	<b>A-8545-2012</b>

## 1. WORK EXPERIENCE

Since Nov 2017	<b>Researcher at INFN Legnaro National Laboratories</b>
OCT 2015 – Oct 2017	<p><b>Post-doc at IKS KU Leuven (Belgium).</b></p> <p><b>European Commission, Marie Skłodowska-Curie Individual Fellowship (IF) MagicTin project [661777] (Jan 2016 – Dec 2017). Two years project.</b>  <i>Study of nuclear shell evolution in the neutron rich Sn isotopes with an ACTIVE TARGET. Development of an ACTIVE target to be used at the SPES facility. (<a href="http://cordis.europa.eu/search/result_en?q=MagicTin">http://cordis.europa.eu/search/result_en?q=MagicTin</a>)</i></p> <p><b>FWO post-doctoral fellowship (Oct 2015 – Oct 2018). Three years project.</b>  (<a href="http://www.fwo.be/en/fellowships-funding/postdoctoral-fellowships/">http://www.fwo.be/en/fellowships-funding/postdoctoral-fellowships/</a>)  <i>In the overlapping period, the FWO grant is suspended in favor of the European one.</i></p>
JAN 2014 – OCT 2015	<p><b>INFN Post doc <u>Senior Research Fellowship</u>, Legnaro National Laboratories. (Assegno di ricerca senior, bando INFN n. 15793/13),</b>  <i>Neutron innovative detectors with applications to the SPES project.</i></p>
JAN 2013 – Dec 2013	<p><b>INFN Post doc <u>Research Fellowship</u>, Legnaro National Laboratories. (Assegno di ricerca, bando INFN n. 15284/12)</b>  <i>Integration of the acquisition system and data analysis cores of GARFIELD apparatus to perform international activities at TANDEM-ALPI accelerators.</i></p>
JAN 2010 – DEC 2012	<p><b>Padua University, PhD school in Physics - PhD Fellowship</b>  <b>INFN association at Legnaro National Laboratories</b></p>
OCT 2009 – JAN 2010	<p><b>INFN Graduate fellowship, Legnaro National Laboratories (Bando INFN n. 13144/09, primo classificato in graduatoria)</b></p>
SEPT 2008 – OCT 2009	<p><b>INFN Undergraduate fellowship, Legnaro National Laboratories. (Bando INFN n. 12654/08)</b></p>



## 1.1 RESEARCH ACTIVITY

- SINCE 2016** **AIPAC8Be**  
**Spokesperson of an approved experiment at AN2000 facility (LNL)**  
for the measurement of electron-positron angular correlations in 8Be decay.  
*This experiment aims at providing an independent test of the results published in [Phys Rev Lett 116 042501 (2016)] where the observation of a new neutral particle is claimed (and linked to the existence of unknown forces in Nature).*
- SINCE 2013** **ACTAR Collaboration: Presently my main activity, carried on within the EU-MSCA-IF and FWO funded projects.**  
**-Coordinator** of WP 4 (ancillary detectors) for the “Gas-filled Detectors and Systems” ENSAR2 GDS network.  
**-Co-spokesperson of the LOI for SPES:** Shell structure in the vicinity of  $^{132}\text{Sn}$  with an active target.  
**-Spokesperson of a Letter Of Intent to the GANIL PAC** for testing the ACTAR demonstrator with heavy ion beams ( $^{136}\text{Xe}$  (d,p))  
**-P.I. of the ATS (Active Target for SPES) project** for the SIR2014 call. The project was admitted to the second stage of selection getting an evaluation of 29/30.  
**-International Reference for ATS at SPES**
- SINCE 2013** **TAPE STATION for SPES**  
**Coordinator of the TS working group within the WPB01 (Scientific Support) of the SPES project.**  
The activity consists in the design and construction of a slow tape station to be used for beam diagnostic for the SPES facility.  
**Duties:**  
**- Project coordination and design of the global setup.**  
**- Management of the collaboration between LNL, iThemba lab (South Africa) and IPN Orsay (France)**  
**- Detectors and acquisition system setup.**
- SINCE 2011** **NUCLEAR STRUCTURE**  
Evolution of nuclear shells far from stability. In beam gamma-ray spectroscopy with radioactive ion beams at fragmentation facilities. [31, 35].  
**Duties:**  
**-In charge** for the analysis of  $^{74}\text{Ni}$  Coulomb excitation experiment (e09031 – MSU) [31] – **PhD thesis.**  
**-In charge** for the analysis of  $^{68, 70, 72}\text{Ni}$  inelastic proton scattering experiment (e12016 – MSU) [in progress]  
**-Co-spokesperson** of 2013 Eurica campaign at RIKEN (“Structural Changes between  $N=40$  and  $N=50$  next to Ni isotopes: a joint proposal”)
- SINCE 2008** **REACTION DYNAMICS**  
**Member of the NUCLEX-FAZIA Collaboration (INFN CSN3)**  
that studies reaction mechanisms at low and intermediate energies and develops state of the art arrays for charged particles detection.  
**[1,4,7,9,10,11,12,14,15,17,18,19,20,21,22,23,24,25,32,33,36,38,39]**  
My research activity focuses on fast processes in fusion-evaporation reactions and their connection with clustering effects. On this topic I have recently submitted a review invited article for a special issue of the International Journal of Modern Physics E (IJMP) dedicated to a discussion of the current



status and new developments in nuclear correlations and nuclear cluster physics.

**Duties:**

**-Person in charge for the GARFIELD apparatus (2010-2015) [19]:**

1. TPC detector maintenance and upgrade
2. acquisition and ancillary software maintenance and development
3. experiment preparation
4. data storage and reduction

**-Spokesperson of the LOI submitted to the SPES SAC for studying pre-equilibrium emission with exotic nuclei (2014)**

**-Spokesperson of the ACLUS2 experiment to study  $^{16}\text{O}+^{30}\text{Si}$ ,  $^{18}\text{O}+^{28}\text{Si}$ ,  $^{19}\text{F}+^{27}\text{Al}$  reactions at 7 AMeV. The data collected are now subject of a PhD thesis at Padua University.**

**-Analysis of ACLUS2 experiment ( $^{16}\text{O}+^{65}\text{Cu}$ ,  $^{19}\text{F}+^{62}\text{Ni}$  @ 16 MeV) studying light particles pre-equilibrium emission and clustering in medium mass systems.**

**-Developer of the digital acquisition system for the RIPEN apparatus (24 neutron detectors +2 corset arms) based on commercial digitizing boards.**

**-Developer of one on-line data monitor and shapes processor for the FAZIA Demonstrator.**

**-Developer of the FAZIA electronic logbook.**

**2012 - 2013**

**ASTRO25MG Co-spokesperson**

Neutron emission cross section measurement for astrophysical purpose:

*$^{25}\text{Mg}(\alpha,n)^{28}\text{Si}$  study at stellar energies with the CN accelerator at LNL. [29]*

**Duties:**

**-Implementation of the complete digital acquisition system and data monitor (10 neutron detectors +2 silicon detectors+ 2 LaBr<sub>3</sub> scintillators)**

**-Data presorting – parallel software for off line pulse shape analysis.**

**2011 - 2012**

**BETABEAMS**

Neutron emission cross section measurement for the EuroNu collaboration:

Reaction studied:  $^6\text{Li}({}^3\text{He},n)^8\text{B}$  [16,26]. **Duties:**

**-Implementation of the digital acquisition system and data monitor (8 neutron detectors + 2 silicon detectors)**

**-Data presorting – off line pulse shape analysis.**

**SINCE 2008**

**ORIONE – HYDE Collaboration (INFN CSN5)**

**Development of new neutron detectors.**

Development and characterization of new scintillating materials based on polysiloxane siliconic rubbers. Light collection using PMT, SiPM and APD photodetectors. Coupling of the scintillating material with 3D silicon detectors. **Duties:**

**-Light yield and detector response measurement with radioactive sources. - Material characterization using IBA techniques. [1,2,3,5]**

**-Study of the light output timing properties for neutron/gamma pulse shape discrimination purposes.**

**-In charge of several neutron response measurement using radioactive sources and beam-induced neutron fluxes. Co-Spokesperson and Spokesperson of two experiments at the CN facility LNL (2015,2016)**

**[6,8,13,27,28,30,34,37]**

Spring 2017	<b>KU Leuven, Physics department – Assistant.</b> <i>Introductory Nuclear Physics. Assistant for the exercise sessions.</i>
Spring 2016	<b>KU Leuven, Physics department – Assistant.</b> <i>Introductory Nuclear Physics. Assistant for the exercise sessions.</i>
Fall 2015	<b>Padua University, Physics and department – Tutor.</b> <i>Advanced Physics Laboratory for Master degree in Physics (B).</i>
Spring 2015	<b>Padua University, Physics department – Tutor.</b> <i>Advanced Physics Laboratory for Master degree in Physics (A).</i>
Fall 2014	<b>Padua University, Physics department – Lecturer.</b> <i>Electromagnetism course for Optics curricula students.</i>
Fall 2013	<b>Padua University, Physics department – Lecturer.</b> <i>Electromagnetism course for Optics curricula students.</i>
Sept 2010	<b>Padua University, Veterinary Medicine department - Lecturer</b> <i>Mathematics and Physics introductory course.</i>
May 2010	<b>Padua University, Physics department - Tutor.</b> <i>Laboratory Course of Electronics for Physics students.</i>
June 2015	<b>Legnaro National Laboratory Stage For High School Students - Tutor.</b> <i>WP: "Particles detection and identification using eco-friendly scintillators".</i>
June 2014	<b>Legnaro National Laboratory Stage For High School Students - Tutor.</b> <i>WP: "Particles detection and identification using eco-friendly scintillators".</i>
June 2013	<b>Legnaro National Laboratory Stage For High School Students - Tutor.</b> <i>WP: "Particles detection and identification using eco-friendly scintillators".</i>
June 2012	<b>Legnaro National Laboratory Stage For High School Students - Tutor.</b> <i>WP: "Synthesis and characterization of scintillating materials for radiation detection".</i>
July 2011	<b>Legnaro National Laboratory Stage For High School Students - Tutor.</b> <i>WP: "Study of scintillation detectors for medical diagnostic, environmental monitoring and nuclear physics experiments".</i>
July 2010	<b>Legnaro National Laboratory Stage For High School Students - Tutor.</b> <i>WP: "Study of scintillation detectors for medical diagnostic, environmental monitoring and nuclear physics experiments".</i>
July 2009	<b>Legnaro National Laboratory Stage For High School Students - Tutor.</b> <i>WP: "Study of scintillation detectors for medical diagnostic, environmental monitoring and nuclear physics experiments".</i>

### 1.3 STUDENT'S SUPERVISION

June 2016	<b>Co-supervisor</b> <b>KU Leuven, Physics department, Master Thesis of Charlotte Wouters</b> <i>Searching for <math>\alpha</math>-cluster states in <math>^{12}\text{C}</math> using the ACTAR TPC Demonstrator.</i>
June 2015	<b>Co-supervisor</b> <b>University of Naples Federico II, Master Thesis of Magda Cicerchia</b> <i>Clusters vs Pre-equilibrium: a comparative study through the reactions <math>^{16}\text{O} + ^{65}\text{Cu}</math> and <math>^{19}\text{F} + ^{62}\text{Ni}</math></i>
March 2015	<b>Co-supervisor</b> <b>Bologna University, Bachelor Thesis of Lorenzo Piccolo</b> <i>Optimization of organic scintillators for the detection of thermal neutrons</i>
September 2014	<b>Co-supervisor</b> <b>Padua University, Bachelor Thesis of Tommaso Boschi</b> <i>Characterization of Silicon Photomultiplier response to charged particles</i>
April 2014	<b>Co-supervisor</b>



<b>March 2014</b>	<b>Padua University, Master Thesis of Caterina Checchia</b> <i>Polysiloxane based neutron scintillators and Silicon Photomultipliers readout.</i>
	<b>Co-supervisor</b>
	<b>Bologna University, Bachelor Thesis of Fabrizio Alfonsi</b> <i>Moving source fit for pre-equilibrium emission in nuclear collisions.</i>
<b>March 2014</b>	<b>Co-supervisor</b>
	<b>Bologna University, Bachelor Thesis of Catalin Frosin</b> <i>Digital analysis techniques for neutron detector signals.</i>
<b>2012</b>	<b>Co-supervisor</b>
	<b>Bologna University, Bachelor Thesis of Alessandro Mazza</b> <i>CsI(Tl) scintillation detectors preparation for Nuclear Physics purposes.</i>

#### 1.4 PUBLIC ENGAGEMENT AND SCIENCE DISSEMINATION

<b>Since 2014</b>	<b>Engaged in dissemination activities (editor of LNL website, editor for the update of LNL posters) in collaboration with LNL direction.</b>
<b>Sept 2015</b>	<b>Veneto Night. (European Researchers' Night). INFN LNL stand in Padua.</b>
<b>Aug 2015</b>	<b>Co-author of the NUSMES project for the involvement of high school students in science dissemination. The project is under evaluation by the Italian ministry of Education.</b>
<b>Sept 2013</b>	<b>Veneto Night. (European Researchers' Night). INFN LNL stand in Padua.</b>
<b>2010 - 2014</b>	<b>LNL Guide for external visitors</b>



## 2. EDUCATION

### 2.1 ACADEMIC

**2010 - 2013**

University of Padua, Physics department.

**Phd in Physics** (18/04/2013)

Thesis Title: "Nuclear structure evolution far from stability: study of  $^{74}\text{Ni}$  collectivity by Coulomb excitation"

**Supervisor:** prof. G. Montagnoli (Padua University)

**2007 - 2009**

Bologna University, Physics Department.

**Five Year Diploma in Physics** (20/03/2009)

**Final grade:** 110/110 cum laude

**Thesis Title:** "Neutron detection in nuclear physics experiments. Study and characterization of new scintillating materials".

**Supervisor:** prof. Mauro Bruno (Bologna University)

**2003 - 2006**

Bologna University, Physics Department.

**Three Year Diploma in Physics.** (15/12/2006)

**Final grade:** 110/110 cum laude

**Thesis Title:** "Scintillation Detectors for Nuclear Physics Experiments"

**Supervisor:** Prof. Mauro Bruno (Bologna University)

**1998 - 2003**

Liceo Scientifico Statale "Niccolò Copernico",

Bologna (Italy) Scientific High School Degree

**Final grade:** 98/100

### 2.2 SCHOOLS

**12 - 24 JUL 2015**

**TRIUMF Summer Institute, Theories for exploring experiments in light and medium-mass nuclei.**

TRIUMF, VANCOUVER (BC, CANADA)

**8 - 11 NOV 2011**

**First SPES school on experimental techniques with radioactive beams**

CATANIA (IT)

**4 - 8 OCT 2010**

**1<sup>st</sup> FLUKA advanced course and Workshop**

ERICEIRA (P)

**2 - 6 AUG 2010**

**Exotic Beam Summer School**

OAK RIDGE NATIONAL LABORATORY – OAK RIDGE (TN, USA)

**19 - 24 JUL 2010**

**International Physics School "Enrico Fermi": From the Big Bang to the Nucleosynthesis**

VARENNA, COMO (IT)

### 3. SCIENTIFIC PRODUCTION

#### 3.1 COORDINATION OF SCIENTIFIC ACTIVITIES / RESPONSABILITIES

2017 -	<b>Co-spokesperson of the NUCLEX Collaboration INFN – CSN3</b>
2017	<b>Co-chair of the first GDS topical meeting (GDS-ENSAR2)</b> <a href="https://agenda.infn.it/conferenceDisplay.py?confId=12079">https://agenda.infn.it/conferenceDisplay.py?confId=12079</a>
2016	<b>Member of the Organizing Committee of the:</b> “V Seminarion Nazionale Rivelatori Innovativi” <a href="https://agenda.infn.it/conferenceDisplay.py?confId=11097">https://agenda.infn.it/conferenceDisplay.py?confId=11097</a>
2015/2016	<b>Organizer of two BriX workshops and editor of the BriX wiki page.</b> (BriX is the Belgian Network for exotic nuclei) <a href="https://iks32.fys.kuleuven.be/wiki/brix/index.php5/Main_Page">https://iks32.fys.kuleuven.be/wiki/brix/index.php5/Main_Page</a> <a href="https://iks32.fys.kuleuven.be/indico/event/40/">https://iks32.fys.kuleuven.be/indico/event/40/</a>
2016 -	<b>Member of the Legnaro National Laboratories User Board</b> <a href="http://www.lnl.infn.it/index.php/it/usergroup/home">http://www.lnl.infn.it/index.php/it/usergroup/home</a>
2014 -	<b>ENSAR2 – Network activity: GDS. Coordinator of WP4 (ancillary detectors)</b> <a href="http://igfae.usc.es/gds/">http://igfae.usc.es/gds/</a>
2014	<b>Promoter and organizer of the INFN course on Digital Electronics at LNL</b> <a href="http://www.lnl.infn.it/~garfweb/e_digit/">http://www.lnl.infn.it/~garfweb/e_digit/</a>
2013 -	<b>Coordinator of the TAPE station for SPES working group within WP B.01</b> (scientific support).
2012 -	Spokesperson and co-spokesperson of experiments at LNL TANDEM-ALPI, LNL CN, GANIL and RIKEN facilities.

#### 3.2 CONTRIBUTIONS TO CONFERENCES AND WORKSHOPS

23 Oct 2017	<b>XII Latin-American Symposium on Nuclear Physics and Applications Cuba (La Havana - Cuba)</b> <b>T. Marchi, Exploring the shell structure of exotic Sn isotopes with an Active Target at SPES: the MagicTin project - INVITED TALK</b>
18 Oct 2017	<b>XX Colloque GANIL (Amboise – FR)</b> <b>T. Marchi, Reaction dynamics and exotic systems: a focus on fast processes - INVITED TALK</b>
14 Sept 2017	<b>103° Congresso Nazionale della Società Italiana di Fisica (Trento - IT)</b> <b>T. Marchi, SPES, a “broadband” facility - INVITED TALK</b>
15 May 2017	<b>ISTROS conference (Častá-Papiernička, Slovak Republic)</b> <b>T. Marchi, Direct reactions, shell evolution and Active Targets: the MagicTin project - INVITED TALK</b>
20 Oct 2016	<b>EURISOL DF 2016 (Leuven, BE)</b> <b>T. Marchi, Measuring direct reactions with an active target for Z≥50 nuclei: the MagicTin project - TALK</b>



- 9 Aug 2016 **Workshop on Software for Time Projection Chambers for Nuclear Physics Experiments (FRIB, MSU, Michigan – USA)**  
T. Marchi, *The SpecMAT project: status and perspectives* – **TALK**
- 14 July 2016 **DREB 2016 (Halifax – CA)**  
T. Marchi, *Coupling gamma-ray detection to an active target in a high magnetic field: the SpecMAT project for direct reaction studies.* – **TALK**
- 21 June 2016 **INFN CSN3 meeting – SPES special session. LNL – IT**  
T. Marchi, *Reaction mechanisms at SPES: summary of INFN activities and instrumentation.* – **Summary Report to INFN CSN3**
- 9-10 May 2016 **BriX workshop, SCK-CEN (Mol – B)**  
T. Marchi, *The SPES project at LNL* – **TALK**
- 26-29 Apr 2016 **Joint LIA COLL-AGAIN, COPIGAL, and POLITA Workshop (Catania – IT)**  
T. Marchi, *ATS: the Active target for SPES* – **INVITED TALK**
- 18-20 Nov 2015 **ACTAR WORKSHOP (GANIL, CAEN – FR)**  
T. Marchi, *Physics opportunities with an active target in Italy* – **INVITED TALK**
- 23 -26 Giu 2014 **EGAN 2015 WORKSHOP (GSI, DARMSTADT - D)**  
T. Marchi, *Experimental studies on neutron rich Ni isotopes* – **INVITED TALK**
- 26 -28 May 2014 **Second SPES International Workshop (LNL – IT)**  
T. Marchi, *Preequilibrium emission: a tool to study dynamic effects and clustering structure in exotic nuclei* – **LETTER OF INTENT**
- 12 - 16 May 2014 **11<sup>th</sup> International Spring Seminar On Nuclear Physics (Ischia - IT)**  
T. Marchi, *Shell evolution in exotic Nickel isotopes.* - **TALK**
- 6 - 9 May 2014 **International Workshop On Multi Facets Of Eos And Clustering IWM-EC 2014 (Catania - IT)**  
T. Marchi, *Pre-equilibrium emission and its possible relation to  $\alpha$ -clustering in nuclei* - **TALK**
- 19 - 22 Feb 2014 **2<sup>nd</sup> Topical Workshop On Modern Aspects In Nuclear Structure (Bormio – IT)**  
T. Marchi, *Shell Evolution in exotic Ni isotopes* - **TALK**
- 7 - 10 Jan 2014 **First Joint Lea-Colliga-Copigal Workshop (Paris - FR)**  
T. Marchi, *Quadrupole collectivity in neutron rich Ni isotopes: intermediate energy Coulomb excitation of  $^{74}\text{Ni}$*  - **TALK**
- 8 - 9 Oct 2013 **SPES One Day Workshop: Isospin On Reaction Mechanism With Ribs (LNS - Catania, It)**  
T. Marchi, *Pre-equilibrium emission: a tool to study dynamic effects and clustering structure in exotic nuclei* - **TALK**
- 2 - 7 Jun 2013 **International Nuclear Physics Conference 2013 (Firenze – IT)**  
T. Marchi, *Evolution of collectivity in the  $^{78}\text{Ni}$  region: Coulomb excitation of  $^{74}\text{Ni}$  at intermediate energies.* - **TALK**
- 8 - 12 Apr 2013 **Heavy Ion Accelerator Symposium 2013 (Canberra – Australia)**  
T. Marchi, *Probing core polarization around  $^{78}\text{Ni}$ : intermediate energy Coulomb excitation of  $^{74}\text{Ni}$*  – **TALK**





11 - 15 Jun 2012	<p><b>13<sup>th</sup> International Conference On Nuclear Reaction Mechanisms (Varenna - LC, IT)</b>  <b>T. Marchi, <sup>8</sup>B production measurement at LNL - TALK</b></p>
20-25 May 2012	<p><b>EURORIB 2012 (Abano Terme – Padova, IT)</b>  <b>T. Marchi, Study of <sup>74</sup>Ni collectivity by Coulomb excitation - POSTER</b></p>
14 - 16 Nov 2011	<p><b>5<sup>th</sup> Lea-Colliga Meeting, (Orsay, FR)</b>  <b>T. Marchi, Upgrading the RIPEN apparatus with Digital Electronics. - TALK</b></p>
8 - 11 Nov 2011	<p><b>First Spes School On Experimental Techniques With Radioactive Beams (LNS - Catania, IT)</b>  <b>T. Marchi: STUDENT'S PRESENTATION</b>  <i>Upgrading the RIPEN apparatus with digital electronics in perspective of the SPES radioactive beams. - TALK</i></p>
26 - 29 Oct 2011	<p><b>FALL MEETING OF THE AMERICAN PHYSICAL SOCIETY (EAST LANSING – MI, USA)</b>  <b>T. Marchi, Digital Electronics Equipment for the RIPEN apparatus. - TALK</b></p>
24 Sept 2010	<p><b>CONGRESSO NAZIONALE SIF (BOLOGNA, IT)</b>  <b>T. Marchi, Organic scintillators for neutrons: characterization of new scintillating silicon rubbers and light yield measurement. - TALK</b></p>
30 Mar - 1 Apr 2009	<p><b>EURISOL PISA TOWN MEETING (PISA, IT)</b>  <b>T. Marchi, Organic scintillators for neutrons: production and characterization of detectors of interest for SPES, SPIRAL2, EURISOL. - POSTER</b></p>

### 3.3 PUBLICATIONS ON REFEREED JOURNALS

#### Author or Co-Author of:

- 42 Refereed articles on International Scientific Journals
- 46 Conference proceedings (part on Journals with referee)
- 58 Reports

#### 3.3.1 ARTICLES ON REFEREED JOURNALS (SELECTED)

- [42] **S. Piantelli, ..., T. Marchi, et al**  
*Isospin diffusion in binary collisions of <sup>32</sup>S+<sup>40,48</sup>Ca and <sup>32</sup>S+<sup>48</sup>Ti at 17.7 MeV/nucleon*  
**Physical Review C, 96 (2017) 034622**
- [40][41] **BOOK: Nuclear Particle Correlations and Cluster Physics, WORLD SCIENTIFIC (2017)**  
**Chapter 10: L.Morelli, .. , T. Marchi, et al, Particle-particle correlations: a tool for investigating excited states and clustering effects in the decay of excited nuclei**  
**Chapter 20: T. Marchi et al, Using fast processes to investigate cluster states and nuclear correlations in medium-heavy nuclei: specific tools and new opportunities with Radioactive Ion Beams.**
- [39] **F. Salomon, ..., T.Marchi et al,**  
*Front-end electronics for the FAZIA experiment*



- Journal Of Instrumentation, 11 (2016) C01064**
- [38] **S. Valdrè, ..., T.Marchi et al,**  
*Charged particle decay of hot and rotating  $^{88}\text{Mo}$  nuclei in fusion-evaporation reactions*  
**Physical Review C, 93 (2016) 034617**
- [37] **A. Giaz, ..., T.Marchi et al,**  
*Fast neutron measurements with  $^7\text{Li}$  and  $^6\text{Li}$  enriched CLYC scintillators.*  
**Nucl Instrtr and Meth A, 825 (2016) 51.**
- [36] **L. Morelli, ..., T.Marchi et al,**  
*The  $^{12}\text{C}^*$  Hoyle state in the inelastic  $^{12}\text{C} + ^{12}\text{C}$  reaction and in  $^{24}\text{Mg}^*$  decay.*  
**Journal of Physics G, 43 (2016) 045110.**
- [35] **T. Braunroth, ..., T.Marchi et al,** *Reduced transition strengths of low-lying yrast states in Chromium isotopes in the vicinity of  $N=40$ .*  
**Physical Review C, 92 (2015) 034306.**
- [34] **M. Dalla Palma, ..., T. Marchi, et al**  
*Non-toxic liquid scintillators with high light output based on phenyl-substituted siloxanes*  
**Optical materials, 42 (2015) 111**
- [33] **M. Ciemala, ..., T.Marchi et al,** *Giant dipole resonance built on hot rotating nuclei produced during evaporation of light particles from the  $^{88}\text{Mo}$  compound nucleus.*  
**Physical Review C, 91 (2015) 054313**
- [32] **A.J. Kordyasz, ..., T.Marchi et al,**  
*Low-temperature technique of thin silicon ion implanted epitaxial detectors.*  
**European Physical Journal A, 51 (2015) 15**
- [31] **T. Marchi (1<sup>st</sup> author) et al,**  
*Quadrupole transition strength in the  $^{74}\text{Ni}$  nucleus and core polarization effects in the neutron-rich Ni isotopes.*  
**Physical Review Letters, 113 (2014) 182501.**
- [30] **S. M. Carturan, T. Marchi et al,**  
*Scintillator and solid-state neutron detectors and their applications.*  
**European Physical Journal Plus, 129 (2014) 212.**
- [29] **A. Caciolli, T. Marchi et al,**  
*A new study of  $^{25}\text{Mg}(\alpha, n)^{28}\text{Si}$  angular distributions at  $E=3-5\text{MeV}$ .*  
**European Physical Journal A, 50 (2014) 147**
- [28] **R. Mendicino, ..., T.Marchi et al,**  
*Novel 3D silicon sensors for neutron detection*  
**Journal of Instrumentation, 9 (2014) C05001.**
- [27] **M. Dalla Palma, ..., T.Marchi et al,**  
*Red emitting phenyl-polysiloxane based scintillators for neutron detection.*  
**IEEE Transactions on Nuclear Science, 61, 4 (2014) 2052.**
- [26] **E. Wildner, ..., T.Marchi et al,**  
*Design of a neutrino source based on beta beams.*  
**Physical Review Special Topics-Accelerators and Beams, 17 (2014) 071002.**
- [25] **A. Giaz, ..., T.Marchi et al,**  
*Measurement of Dynamical Dipole gamma-ray emission in  $N/Z$  asymmetric fusion reactions  $^{16}\text{O}+^{116}\text{Sn}$  at 12 MeV/A.*  
**Physical Review C, 90(2014) 014609**



- [24] **G. Pasquali, ..., T.Marchi et al,**  
*Energy measurement and fragment identification using digital signals from partially depleted Si detectors.*  
**European Physical Journal A, 50 (2014) 86**
- [23] **L. Morelli, ..., T.Marchi et al,**  
*Thermal properties of light nuclei from  $^{12}\text{C}+^{12}\text{C}$  fusion–evaporation reactions.*  
**Journal of Physics G, 41 (2014) 075107**
- [22] **L. Morelli, ..., T.Marchi et al,**  
*Non-statistical decay and  $\alpha$ -correlations in the  $^{12}\text{C}+^{12}\text{C}$  fusion–evaporation reaction at 95 MeV.*  
**Journal of Physics G, 41 (2014) 075108**
- [21] **R. Bougault, ..., T.Marchi et al,**  
*The FAZIA project in Europe: R&D phase.*  
**European Physical Journal A, 50 (2014) 47**
- [20] **S. Piantelli, ..., T.Marchi et al,**  
*N and Z odd-even staggering in Kr plus Sn collisions at Fermi energies.*  
**Physical Review C, 88 (2013) 64607**
- [19] **M. Bruno, F. Gramegna, T.Marchi et al,**  
*GARFIELD plus RCo digital upgrade: A modern set-up for mass and charge identification of heavy-ion reaction products.*  
**European Physical Journal A, 49 (2013) 128**
- EPJ A Cover – Oct 2013**
- 
- [18] **G. Baiocco, ..., T.Marchi et al,**  
 *$\alpha$ -clustering effects in dissipative  $^{12}\text{C} + ^{12}\text{C}$  reactions at 95 MeV*  
**Physical Review C, 87 (2013) 054614**
- [17] **S. Barlini, ..., T.Marchi et al,**  
*Isospin transport in  $^{84}\text{Kr}+^{112,124}\text{Sn}$  collisions at Fermi energies*  
**Physical Review C, 87 (2013) 054607**
- [16] **T. R. Edgecock et al. (BETABEAMS collaboration)**  
*High intensity neutrino oscillation facilities in Europe*  
**Physical Review Special Topics, Accelerators and beams, 16 (2013) 021002**
- [15] **S. Barlini, ..., T.Marchi et al,**  
*Effects of irradiation of energetic heavy ions on digital pulse shape analysis with silicon detectors*  
**Nuclear Instruments and Methods in Physics Research A, 707 (2013) 89**
- [14] **N. LeNeindre, ..., T.Marchi et al,**  
*Comparison of charged particle identification using pulse shape discrimination and  $\Delta E_E$  methods between front and rear side injection in silicon detectors.*  
**Nuclear Instruments and Methods in Physics Research A, 701 (2013) 145**
- [13] **A. Quaranta, ..., T.Marchi et al,**  
*Characterization of polysiloxane organic scintillators produced with different phenyl*

*containing blends*

**Materials Chemistry and Physics, 137 (2013) 951**

- [12] **G. Pasquali, ..., T. Marchi et al,**  
*A single-chip telescope for heavy-ion identification*  
**European Physical Journal A, 48 (2012) 158**
- [11] **M. O. Fregeau, ..., T. Marchi et al,**  
*X-Ray Fluorescence from the Element with Atomic Number  $Z = 120$ .*  
**Physical Review Letters, 108 (2012) 122701**
- [10] **S. Carboni, ..., T. Marchi et al,**  
*Particle identification using the  $\Delta E$ -E technique and pulse shape discrimination with the silicon detectors of the FAZIA project.*  
**Nuclear Instruments and Methods in Physics Research A, 664 (2012) 251**
- [9] **A. Corsi, ..., T. Marchi et al,**  
*Measurement of isospin mixing at a finite temperature in  $^{80}\text{Zr}$  via giant dipole resonance decay.*  
**Physical Review C, 84 (2011) 041304 (R)**
- [8] **S. Carturan, A. Quaranta, T. Marchi et al,**  
*Novel Polysiloxane-based scintillators for neutron detection.*  
**Radiation Protection Dosimetry, 143, 2-4 (2011) 471**
- [7] **M. D'Agostino, ..., T. Marchi et al,**  
*Reaction mechanisms and staggering in S + Ni collisions.*  
**Nuclear Physics A, 861, 1 (2011) 47**
- [6] **A. Quaranta, S. Carturan, T. Marchi et al,**  
*Doped polysiloxane scintillators for thermal neutrons detection.*  
**Journal of Non-Crystalline Solids, 357, 8-9 (2011) 1921**
- [5] **A. Quaranta, S. Carturan, T. Marchi et al,**  
*Radiation hardness of polysiloxane scintillators analyzed by Ion Beam Induced Luminescence.*  
**Nucl Instr and Meth B, 268, 19 (2010) 3155**
- [4] **L. Morelli, ..., T. Marchi, et al,**  
*Automatic procedure for mass and charge identification of light isotopes detected in CsI(Tl) of the GARFIELD apparatus.*  
**Nucl Instr and Meth A, 620, 2-3 (2010) 305**
- [3] **A. Quaranta, S. Carturan, T. Marchi et al,**  
*Doping of polysiloxane rubbers for the production of organic scintillators.*  
**Optical Materials, 32, 10 (2010) 1317**
- [2] **A. Quaranta, S. Carturan, T. Marchi et al,**  
*Optical and Scintillation Properties Of Polydimethyl-diphenylsiloxane Based Organic Scintillators.*  
**IEEE Transactions on Nuclear Science, 57, 2 (2010) 891**
- [1] **N. Grassi, G. Casini, M. Frosini, G. Tobia, T. Marchi,**  
*PIXE characterization of CsI(Tl) scintillators used for particle detection in nuclear reactions.*  
**Nuclear Instruments and Methods in Physics Research B, 266 (2008) 2383**



### 3.3.2 REFERRED CONFERENCE PROCEEDINGS (SELECTED)

- [CP4] **IWM-EC 2014 - International Workshop On Multi Facets Of Eos And Clustering**  
T. Marchi et al, Pre-equilibrium emission and its possible relation to alpha-clustering in nuclei  
EPJ WEB OF CONFERENCE 88 (2015) 00016
- [CP3] **International Nuclear Physics Conference 2013**  
T. Marchi et al, Evolution of collectivity in the  $^{78}\text{Ni}$  region: Coulomb excitation of  $^{74}\text{Ni}$  at intermediate energies.  
EPJ Web of Conferences 66 (2014) 02066
- [CP2] **Heavy Ion Accelerator Symposium 2013**  
T. Marchi et al, Probing core polarization around  $^{78}\text{Ni}$ : intermediate energy Coulomb excitation of  $^{74}\text{Ni}$ .  
EPJ Web of Conferences 63 (2013) 01021
- [CP1] **13th International Conference On Nuclear Reaction Mechanisms**  
T. Marchi et al,  $^8\text{B}$  production measurement at LNL  
CERN Proceedings 2012-002

### 3.3.3 REPORTS (SELECTED)

- [RP4] **T. Marchi et al., Digital Electronics Equipment for the RIPEN Apparatus, LNL annual report 2011, [www.inl.infn.it](http://www.inl.infn.it)**
- [RP3] **T. Marchi et al., Large Scale Production of Siloxane-Based Scintillators for Neutron Detection, LNL annual report 2010, [www.inl.infn.it](http://www.inl.infn.it)**
- [RP2] **T. Marchi et al., First Tests with Digital Electronics for the RIPEN Apparatus, LNL annual report 2010, [www.inl.infn.it](http://www.inl.infn.it)**
- [RP1] **T. Marchi et al., Analysis of the spectral response of CsI(Tl) scintillators for particle and fragment detection in nuclear reactions, LNL annual report 2006, [www.inl.infn.it](http://www.inl.infn.it)**

### 3.4 REFERRAL ACTIVITY

- Referee** *European Physical Journal (EPJ) - Web Of Conferences*
- Referee** *Acta Physica Polonica*
- Referee** *Europhysics Letters (EPL) – IOP Science*
- Reader** *Master thesis at KU Leuven*
- Panels** *Jury member for Bachelor degree in Optics and Optometry – Padua University, Physics department*  
*PhD Jury member for at KU Leuven, Physics Department*



### 3 OTHER INFORMATION

#### 4.1 AWARDS

2006 INFN – Award for Bachelor Thesis in Nuclear Physics.

#### 4.2 REFERENCES

Dr. F. Gramegna  
Research Director at Laboratori Nazionali di Legnaro (INFN)  
V.le Dell'Università, 2 – 35020 Legnaro (PD) - Italy  
[gramegna@lnl.infn.it](mailto:gramegna@lnl.infn.it)

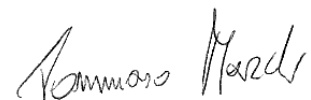
Prof. R. Raabe  
Instituut voor Kern- en Stralingsfysica  
Celestijnenlaan 200d – B-3001 Heverlee - Belgium  
[raabe@fys.kuleuven.be](mailto:raabe@fys.kuleuven.be)

Dr. V.L. Kravchuk  
Head Division of International Science And Technology Cooperation  
NRC "Kurchatov Institute", Moscow, Russia

Prof. M. Bruno  
Physics and Astronomy Department, Bologna University  
V.le Berti Pichat, 6/2 - 40127 Bologna (BO) - Italy

*Legnaro (Pd), 9<sup>th</sup> June 2020*

**Tommaso Marchi**



## CURRICULUM VITAE



### INFORMAZIONI PERSONALI

Nome **MORETTO, SANDRA**  
Indirizzo \_\_\_\_\_  
Telefono \_\_\_\_\_  
Qualifica **Ricercatore Confermato**  
Settore Scientifico Disciplinare **FIS/01 - Fisica sperimentale**  
Anzianità nel ruolo: **01/03/2011**  
Sede **Dipartimento di Fisica e Astronomia (DFA)**  
E-mail **sandra.moretto@unipd.it**

Nazionalità Italiana

Data di nascita \_\_\_\_\_

### TITOLI DI STUDIO E CARRIERA

- Titolo di studio Dottorato di Ricerca
- Carriera Dal 2013 Ricercatore Universitario
- Premi e riconoscimenti per l'attività scientifica Abilitazione Scientifica Settore Scientifico Disciplinare Fis 02/A1 II Fascia 28/11/2014 al 28/11/2020
- Pubblicazioni Co-Autore di più di 250 articoli su riviste internazionali
- Periodi di Congedo  
09/08/2012 al 09/10/2012 Congedo per maternità (L. 1204/1971)  
20/06/2012 al 08/08/2012 Congedo per maternità (L. 1204/1971)
- Incarichi istituzionali relativi alla ricerca in didattica  
Relatrice di tesi di Percorsi Speciali Abilitanti Classe di Concorso A038 dal titolo: "Forze Ed Energie Sulle Prove Sui Materiali"  
  
Relatrice di tesi di Percorsi Speciali Abilitanti Classe di Concorso A038 dal titolo: "Come cadono gli oggetti"  
  
Relatrice di tesi di Percorsi Speciali Abilitanti Classe di Concorso A038 dal titolo: "Perché la luna non cade sulla terra? Una risposta partendo da



Galileo fino ai satelliti artificiali"

Relatrice di tesi di laurea magistrale in Mathematical Engineering  
"Rutherford's game: an efficient application of the scientific method for  
the teaching and analysis of Rutherford's atomic model "

Relatrice di tesi di laurea magistrale del Corso di Laurea Magistrale in  
Ingegneria dell'Energia Elettrica da titolo: "Photovoltaic teaching project: a  
didactic method for approaching the renewable energy"

Relatrice di tesi di laurea magistrale del corso di Laurea Magistrale di  
Matematica dal titolo: "Caso di studio in classe: studio e applicazione di  
metodologie didattiche per supportare la nuova didattica cooperativa"

Relatrice di Tesi di laurea magistrale in Ingegneria Meccanica dal titolo  
"Banco di test automatico per la caratterizzazione dei rivelatori a  
scintillazione per il sistema a rivelazione con neutroni etichettati del  
progetto h2020 c-bord".

Responsabile scientifico Assegno di Ricerca dal titolo "Caratterizzazione e  
simulazione per la realizzazione di un prototipo di rivelazione non  
intrusivo nel campo della sicurezza portuale" presso il Dipartimento di  
Fisica e Astronomia Università degli Studi di Padova

Responsabilità' progetto di Dipartimento di Fisica e Astronomia "G. Galilei"  
"Fisica interdisciplinare con neutroni, muoni e gamma" dal 1/1/2014 al  
1/1/2016

Responsabile Scientifico Assegno di ricerca dal titolo "Sviluppo,  
integrazione e test di un rivelatore per la misura in tempo reale della  
radioattività alfa e beta nell'acqua degli acquedotti civili" presso il  
Dipartimento di Fisica e Astronomia Università degli Studi di Padova

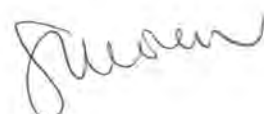
Responsabile Scientifico Assegno di ricerca dal titolo "Simulazioni e test  
per la realizzazione di un prototipo di rivelazione non intrusivo nel campo  
della sicurezza portuale" presso il Dipartimento di Fisica e Astronomia  
Università degli Studi di Padova

Partecipazione al collegio dei docenti del dottorato di ricerca del  
Dipartimento di Fisica e Astronomia

Responsabile scientifico Assegno di ricerca dal titolo "Studio e sviluppo di  
un sistema di rivelatori gamma per la realizzazione di un prototipo di  
rivelazione non intrusivo nel campo della sicurezza portuale" presso il  
Dipartimento di Fisica e Astronomia Università degli Studi di Padova

Responsabile scientifico Assegno di ricerca dal titolo "Sviluppo di un  
rivelatore per la misura in tempo reale della radioattività alfa e beta  
nell'acqua degli acquedotti civili" presso il Dipartimento di Fisica e  
Astronomia Università degli Studi di Padova

Responsabile scientifico Assegno di ricerca dal titolo "Measurement of  
charm production in pp and Pb-Pb collision with the ALICE experiment in



the Run-2 of the LHC" presso il Dipartimento di Fisica e Astronomia  
Università degli Studi di Padova

Responsabile scientifico Assegno di ricerca dal titolo "study of the charm  
quark energy loss in the Quark Gluon Plasma via D meson production  
measurement in Pb-Pb and p-Pb collisions with the ALICE experiment at  
LHC" presso il Dipartimento di Fisica e Astronomia Università degli Studi di  
Padova

- **Partecipazione ad attività di  
ricerca internazionali**

Partecipazione al progetto EXPLODET (EXPLOsive DETection) per lo  
sviluppo di un sensore a neutroni termici per l'identificazione di mine  
nascoste. Istituto Nazionale di Fisica Nucleare

Partecipazione al progetto "Detection and Imaging of Antipersonnel  
Landmine by Neutron Backscattering (DIAMINE)" Quinto Programma  
Quadro (EC) FP5-IST-2000-25237, Grant. no. CEE IST-2000-25237, 2001-  
2003

Partecipazione a gruppo di ricerca presso Istituto Nazionale di Fisica  
Nucleare N2P GrIII Fisica Nucleare e Fisica Nucleare applicata Partecipanti:  
INFN Padova, Brescia-Pavia, Legnaro, Texas A&M University Bhabha  
Atomic Research Centre, Mumbai

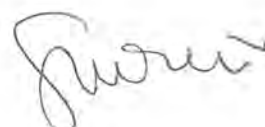
Partecipazione alla collaborazione ALICE A Large Ion Collider Experiment al  
CERN

Partecipazione al progetto "EUropean Illicit TRAfficking Countermeasures  
Kit (EURITRACK)" Scopo del progetto: EURITRACK ha lo scopo di  
aumentare la sicurezza dei porti sviluppando un kit di ispezione non  
intrusiva per la ricerca di materiale illecito e esplosivi nei container"  
Finanziamento Sesto Programma Quadro (Europe) FP6-IST-2002-2.3.2.9,  
Grant. no. 511471, 2004-2007

Partecipazione al progetto "MOdular DETection System for Special Nuclear  
Material (MODES\_SNM)" Settimo Programma Quadro (EC) FP7-SEC-2011-  
1, Grant. no. 284842, 2012-2014

Partecipazione al progetto Europeo come workpackage leader "TAp WAter  
RAdioactivity Real Time Monitor (TAWARA\_RTM)" Settimo Programma  
Quadro FP7-SEC-2012-1, Grant no. 312713, 2013-2016

Partecipazione al progetto europeo come workpackage leader "C-BORD:  
"effective Container inspection at BORDer control points" H2020 Grant  
agreement no: 653323 Call: BES-09-2014: Supply Chain Security topic  
2:Technologies for inspections of large volume freight



- **Responsabilità scientifica per progetti di ricerca internazionali**

Nel progetto Europeo "TAp WAtER RAdioactivity Real Time Monitor (TAWARA\_RTm)" Settimo Programma Quadro FP7-SEC-2012-1, Grant no. 312713, 2014-2106 Project request: 3400000 euro Finanziamento: 2500000 euro

Responsabile fondi per il WP2 UNIPD di budget 650000 euro  
Responsabilità come WorkPackage Leader del WorkPackage2, finalizzato al "Disegno, assemblaggio e test del prototipo di un monitor real time (RTM) per misurare in continuo la radioattività alfa e beta nell'acqua in situ (gross alpha and beta activity)"

Nel progetto europeo "C-BORD: "effective Container inspection at BORDER control points" H2020 Grant agreement no: 653323 Call: BES-09-2014: Supply Chain Security topic 2:Technologies for inspections of large volume freight.

Responsabile fondi UNIPD di 1035000 euro  
Responsabilità come WorkPackage leader del WorkPackage 4 (WP4): WP4: TECHNOLOGY SUB-SYSTEM Tagged Neutron Inspection System  
Scopo del WP4: Disegno, costruzione e test del primo sistema a neutroni etichettati "rapidly relocatable" per misure di ispezioni non intrusive nei porti.

- **Risultati ottenuti nel trasferimento tecnologico**

Partecipazione a Start Cup Veneto 2017 26/10/2017

Risultato: Secondo posto: progetto "FINAPP: HydraRay sfrutta i raggi cosmici per misurare la quantità d'acqua nel suolo su larga scala"

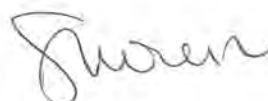
Partecipazione al "Premio Nazionale per l'innovazione (PNI)" Napoli Dicembre 2017 Nel settore "Cleantech&Energy": Risultato:Classificati nei primi quattro Progetto "Finapp"

Partecipazione di FINAPP come Exhibitors al Seed & Chip "THE LEADING FOOD INNOVATION SUMMIT IN THE WORLD "Milano 6-9 Maggio 2018

- **Partecipazione come relatore a convegni di carattere scientifico all'estero sui temi della fisica applicata**

"TAWARA\_RTm: A complete platform for a real time monitoring of contamination events of drinking water " 2016 Real Time Conference (RT2016)

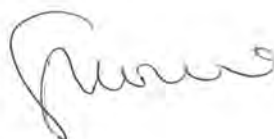
"Tawara\_RTm Project" Joint international workshop on CBRN water related event detection and management, 18-19 November 2015, Brussels, Belgium



Invited Talk at the World Customs Organization 4th TEG-NII Meeting for the presentation of the new Rapidly Relocatable Tagged Neutron Inspection System on 14 December 2018 Brussels

• **Incarichi di Insegnamento**

<i>Dall'a.a. 2011/2012 ad oggi</i>	Incarico di Insegnamento presso Università degli Studi di Padova del corso "Sperimentazioni di Fisica per la Didattica" Laurea Magistrale in Matematica 6 CFU CORSO INSERITO TRA I 24 CFU PER L'ABILITAZIONE ALL'INSEGNAMENTO.
<i>a.a. 2012/2013</i>	Incarico di Insegnamento presso Università degli Studi di Padova del corso di "MODELLI E SPERIMENTAZIONI IN FISICA" TFA038 5 CFU
<i>a.a. 2013/2014</i>	Incarico di Insegnamento presso Università degli Studi di Padova del corso di "MODELLI E SPERIMENTAZIONI IN FISICA" PAS A038 4CFU
<i>a.a. 2014/2015</i>	Incarico di Insegnamento dal titolo "Modelli e sperimentazioni in fisica" presso Università degli Studi di Padova TFA-038 5 CFU
<i>a.a. 2016/2017</i>	<i>Titolare del Corso di formazione "Fisica Moderna a Scuola", FISICA NUCLEARE, per gli insegnanti delle scuole medie superiori.</i>
<i>Dal a.a. 2016/2017 ad oggi</i>	Attribuzione insegnamento di "Radioattività Ambientale" 2 CFU all'interno del corso di "Radioattività e misure nucleari" Corso di Laurea Magistrale in Fisica Università degli Studi di Padova



## ISTRUZIONE E FORMAZIONE

- Date (da – a) 1 Novembre 1999 al 30 Ottobre 2002
- Nome e tipo di istituto di istruzione o formazione Dipartimento di Fisica dell'Università degli Studi di Padova
- Titolo della Tesi Search for isospin and temperature effects in the decay of  $^{98}\text{Mo}$  and  $^{98}\text{Tc}$  nuclei at  $E_x = 110$  MeV
- Qualifica conseguita DOTTORATO DI RICERCA

- Date (da – a) 1 Ottobre 1994 al 20 Luglio 1999
- Nome e tipo di istituto di istruzione o formazione Dipartimento di Fisica dell'Università degli Studi di Padova
- Titolo della Tesi Uso di sistemi di reti neurali per la calibrazione e l'analisi automatica di spettri gamma (Progetto EXPLODET)
- Qualifica conseguita LAUREA IN FISICA

## FORMAZIONE POST DOTTORATO

- Date (da – a) 2009 al 2010
- Nome e tipo di istituto di istruzione o formazione Dipartimento di Fisica dell'Università degli Studi di Padova
- Attività di Ricerca TECNICHE INNOVATIVE DI MATERIAL RECOGNITION CON SORGENTI DI  $^{252}\text{Cf}$
- Qualifica ASSEGNO DI RICERCA
- Date (da – a) 2005 al 2009
- Nome e tipo di istituto di istruzione o formazione Dipartimento di Fisica dell'Università degli Studi di Padova
- Attività di Ricerca COSTRUZIONE, TEST ED INSTALLAZIONE DEL SILICON PIXEL DETECTOR DELL'ESPERIMENTO ALICE A LHC
- Qualifica ASSEGNO DI RICERCA
- Date (da – a) 2003 al 2005
- Nome e tipo di istituto di istruzione o formazione Dipartimento di Fisica dell'Università degli Studi di Padova
- Attività di Ricerca ALICE: Silicon Pixel Detector
- Qualifica Borsa Post Dottorato

## • Contratti Vari

2008-2009 Contratto per prestazione di lavoratore autonomo (attività di supporto alla didattica per l'insegnamento di Laboratorio di Fisica A) presso l'Università degli Studi di Padova

2007-2008 Contratto per prestazione di lavoratore autonomo (attività di supporto alla didattica per l'insegnamento di Laboratorio di Fisica A) presso l'Università degli Studi di Padova



2007-2008	Incarico di insegnamento per il Corso integrato di A1 Fisica, Statistica ed Informatica per Igiene Dentale, Facoltà di Medicina, Università degli Studi di Padova
2006-2007	Contratto per prestazione di lavoratore autonomo (attività di supporto alla didattica per l'insegnamento di Laboratorio di Fisica A) presso l'Università degli Studi di Padova
2006-2007	Incarico di insegnamento per il Corso integrato di A1 Fisica, Statistica ed Informatica per Igiene Dentale, Facoltà di Medicina, Università degli Studi di Padova
2005-2006	Contratto per prestazione di lavoratore autonomo (attività di supporto alla didattica per l'insegnamento di Laboratorio di Fisica A) presso l'Università degli Studi di Padova
2005-2006	Contratto di collaborazione per l'attività di supporto all'insegnamento di Laboratorio di Fisica 1 presso l'Università degli Studi di Padova - corso di Laurea di Ingegneria
2004-2005	Contratto di collaborazione per l'attività di supporto all'insegnamento di Laboratorio di Fisica A presso l'Università degli Studi di Padova
2003-2004	Contratto di collaborazione per l'attività di supporto all'insegnamento di Esperimentazioni di Fisica 3 presso l'Università degli Studi di Padova
2002-2003	Contratto di collaborazione coordinata e continuativa per collaborazione didattica presso l'Università di Udine, Facoltà di Ingegneria, assistente di Laboratorio
1999 - 2000	Contratto di collaborazione coordinata e continuativa presso l' "European Centre for Theoretical Studies in Nuclear Physics and Related Areas (ECT*)" di Trento

## COMPETENZE PERSONALI

Lingua madre ITALIANO

Altre lingue

INGLESE  
FRANCESE

COMPRESIONE		PARLATO		PRODUZIONE SCRITTA
Ascolto	Letture	Interazione	Produzione orale	
C1	C1	B2	B2	C1
A2	A2	A1	A1	A1





Padova, January 5<sup>th</sup> 2019

## Curriculum Vitae of Prof. Gianmaria Collazuol

Gianmaria Collazuol is Associate Professor at the Department of Physics and Astronomy of the University of Padova since April 2017, where he lectures on “Analogue Electronics” and on “Applied Electronics”, he teaches “Physics Laboratory II (Electromagnetism)” and “Advanced Laboratory techniques” to students in Physics and “Management and Analysis of Physical Datasets” to students in Physics of Data.

G.Collazuol graduated in 1997 with first-class honors in Physics (University of Padova). He defended his PhD thesis in 2001 (University of Firenze). He was Research Fellow with the Scuola Normale Superiore in Pisa (2002-09) and with INFN in Pisa and in Padova (2010-11). He was Assistant Professor with the Department of Physics and Astronomy of the University of Padova in the years 2011-2017.

G.Collazuol contributed to the fields of experimental High Energy Particle Physics, Nuclear Physics, Astro-Particle Physics and Medical Physics, working within various international collaborations. His activities include Neutrino Physics and Leptonic CP violation - experiments NOMAD at CERN, ENUBET (ERC project and INFN), T2K at JPARC (Tokai, Japan) and Super-Kamiokande (Kamioka observatory, Japan), CP violation with quarks and Flavour Physics - NA48, NA62 and LHCb experiments at CERN, high energy Gamma and Cosmic-ray Physics and searches for Dark Matter - CALET experiment on the ISS (JAXA, NASA and ASI collaboration, low energy nuclear cross-sections and neutron physics – various experiments at the INFN Laboratories (Legnaro, Italy) and Medical Physics - development of small PET pre-clinical systems. At the moment his main activity is devoted to the T2K, Super-Kamiokande, ENUBET and CALET experiments. His activities in Japan related to Neutrino Physics are seconded by the Jennifer MSCA-RISE EU project.

He gained hands-on experience on a broad set of experimental techniques, from cryogenics to detector physics and technology, from electronics to statistical data analysis and simulation. He contributed to design and build various type of detectors including Liquefied Noble Gases and Cherenkov based Calorimeters, differential Cherenkov and RICH detectors, particle tracking detectors based on semiconductors and on gaseous materials, instrumentation for high energy particle beams and low energy ion beams. He studied new types of organic and inorganic scintillators for low energy gamma and neutron detection and various types of radiation-matter interaction effects, including atomic charge exchange radiation or bremsstrahlung and Cherenkov micro-wave emission, to be exploited for new detection techniques.



He masters analogue and digital electronics and has been responsible of projects for developing high performance trigger and data acquisition systems, including ultra-fast on-line reconstruction with GPUs for high energy experiments (NA62 and LHCb experiments).

He is an internationally recognized expert in the field of photo-detectors and in particular concerning silicon photon-multipliers (SiPM). At the moment he is involved in the development new types of silicon photon-multipliers (SiPM) for applications involving extreme UV light readout and Cherenkov detectors.

He is also developing innovative silicon pixel detectors and related electronics for tracking charged particles based on Avalanche diodes working in Geiger mode.

G.Collazuol is head of the T2K / Super-Kamiokande and of the CALET research groups in Padova. He is Coordinator of the "Space Weather" analysis for the CALET Experiment. He is Project Coordinator for the development of the new TPCs for the upgrade of the T2K Near Detector.

He has been advisor and tutor of several Bachelor and Master Theses and of five PhD theses. He is member of the International Advisory Committees of NDIP and PhotoDet conference series and of the SNRI INFN School series on advanced detectors. He is referee of the Journals "NIM A" and "IEEE TNS". He contributed with over 30 talks at international conferences and authored more than 300 papers in international peer-reviewed journals.

Gianmaria Collazuol

