JACOPO FORNERIS

Curriculum vitæ et studiorum

Personal information

Full name	Jacopo Forneris
Birth date	1985/06/15
Citizenship	Italian
Degrees	School-leaving certificate at Classical Lyceum B. Sc. in Physics M. Sc. in Physics of Fundamental Interactions Ph. D in Physics and Astrophysics
Current Position	Young Researcher Grant National Coordinator of Research Project “DIESIS” - Diamond-based Electrically-controlled Single-photon Sources Istituto Nazionale di Fisica Nucleare (INFN) - Sezione di Torino Duration: 2016-2017 Budget: 120 k€ Funded by INFN, 5th National Scientific Commission
Marital status	Unmarried
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E-mail	jacopo.forneris@unito.it
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Web page	http://www.dfs.unito.it/solid/index.html

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Working experience

2016/02	**Istituto Nazionale di Fisica Nucleare (INFN) sez. Torino** Torino, Italy
Qualification	Young Researcher Grant National Coordinator/Principal investigator of the Research Project "DiESiS" - Diamond-based electrically-stimulated single-photon sources
2013/02 - 2016/01	**Physics Department, University of Torino** Torino, Italy
Qualification	Research Fellow Microfabrication of diamond devices as platform for applied photonics Project "Development of Microfabrication techniques in diamond for applications in bio-sensing and photonics" (2011-2015) Funded by Italian Ministry for Teaching, University and Research (MIUR) within "FIRB - Future in Research 2010" programme Coordinator: dr. Paolo Olivero
10-06-2013 - 09-07-2013	**Department of Drug Science and Technology, University of Torino** Torino, Italy
Qualification	Provision of work services for the project "Development of lithography techniques in diamond for cellular bio-sensing"

Education and training

2010/01/01 - 2012/12/31	**University of Torino** Torino, Italy Scuola di Dottorato in Scienza e Alta Tecnologia Graduate School in Physics and Astrophysics
Thesis	"Theory and applications of the Ion Beam Induced Charge (IBIC) technique"
Supervisor	Prof. Ettore Vittone
Research topics	Modelling of the electronic properties of semiconductor devices Ion Beam Induced Charge Charge sharing effects in multi-electrode detectors Radiation induced damage in semiconductors and insulators
Advanced schools	Tutorial "Live cell micro irradiation" (SPIRIT, 2012) Workshop "Ion beams as a tool for Nanotechnology" (SPIRIT, 2012) SNRI2012, 3rd National Seminar on Innovative Detectors (INFN, 2012) CINECA 7th Advanced School of Parallel Computing - GPGPU programming (CINECA, 2011)

ESC10 - "International School on architectures, tools and methodologies for developing efficient large scale scientific computing applications" (INFN, 2010)

Graduate school courses
Introduction to coupled-cluster theory (University of Torino, 2011)
Data analysis techniques (University of Torino, 2010)
Parallel and distributed computing (University of Torino, 2010)
Multi-scale modeling for engineering applications: from atoms to macroscopic systems (Politecnico di Torino, 2010)

2012/09/03
2012/12/31
International Atomic Energy Agency
Vienna, Austria

Qualification
Intern
Division of Physical and Chemical Sciences

Supervisor
Dr. Aliz Simon

Research topics and tasks
Design of an improved ion accelerator database for the IAEA website
Development of a simulation software with graphical user interface, for the simulation IBIC experiments in semiconductors

2011/05/04 -
2011/05/28
University of Melbourne
Melbourne, Victoria, Australia

Qualification
Visiting staff for reaserch purposes
Micro-Analytical Research Group

Supervisor
Prof. David Norman Jamieson

Research topics
FEM and Monte Carlo modelling of charge sharing effect in silicon multi-electrode devices

2006/10/30 -
2009/07/22
University of Torino
Torino, Italy
M.Sc. - Laurea Magistrale in Physics of Fundamental Interactions

Final mark
110 / 110 cum laude
Thesis
"Corrections to the eikonal amplitude for the Drell-Yan process"

Thesis advisor
Prof. Lorenzo Magnea
Second advisor
Prof. Mauro Anselmino
Main topics
Perturbative QCD, Standard Model Physics, Quantum field theory, Mass divergences, General relativity

2007/01/08 -
2007/06/20
Umeå Universitet
Umeå, Sweden
Erasmus Programme

Main topics	Quantum Computing, Quantum information, Statistical Physics

2003/09/16 - 2006/10/27	**University of Torino** Torino, Italy Laurea di Primo Livello in Fisica - B.Sc. in Physics
Final mark	108/110
Thesis	"Charge and current conservation in gauge theories"
Thesis advisor	Doct. Lorenzo Fatibene
Main topics	Mathematical Physics, Geometrical models in Physics, Classical gauge theories
1998 - 2003	**Liceo classico statale M. D'Azeglio** Torino, Italy Diploma di maturità classica - High school leaving certificate
Final mark	100/100

International experience

2013/11, 2014/01	Visiting scientist at the **Ruder Boskovic Institute**, Zagreb, Croatia, in the framework of the **EU FP7 Project 256783 "Particle Detectors"** as **expert** for exchange of knowledge on **single ion detection** techniques in semiconductors and solid state particle detectors
2015/01 - 2015/03	Visiting scientist at the **Institute for Quantum Optics, University of Ulm, Germany**, for exchange of knowledge on the characterization **color centers in diamond** with the **optically detected magnetic resonance** technique

Teaching

2015 - 2016	**University of Torino** Teaching Assistant for the "To3 Nano Outreach" Project of the Inter-University Centre "Agorà Scienza" funded for the Academic Year 2015-2016 by "Compagnia di San Paolo".
2010 - 2011 and 2013 - 2014	**University of Torino** Teaching Assistant to "Structure of Matter", "Modern Physics Laboratory" and "Solid State Physics Laboratory" undergraduate courses, with contracts "Art. 33 comma 3" and "Art. 76" of the University of Torino regulation
2009 - 2010 and 2011 - 2012	**University of Torino** Teaching Assistant to "Structure of Matter", "Modern Physics Laboratory" and "Solid State Physics Laboratory" undergraduate classes, unofficial

activity

2010 "Science in the city" program, ESOF2010, Torino
Divulgative activity. Multimedia stand at EuroScience Open Forum, Torino, 2010/07/02-07
"Talk with diamond - Devoping tomorrow's lab-on-a-chip clinics"

Theses advising

Second advisor of the following M.Sc. theses:

Sviatoslav Ditalia Tchernij
"Controllo elettrico di centri luminescenti in diamante artificiale"
Tesi di laurea magistrale in Fisica delle Tecnologie Avanzate
M.Sc. Thesis in Physics of Advanced Technologies
University of Torino
Graduation: April, 2015

Matteo Crema
"Sviluppo di un apparato per la misurazione della risonanza magnetica rivelata otticamente da centri di colore in diamante"
Tesi di laurea magistrale in Fisica delle Tecnologie Avanzate
M.Sc. Thesis in Physics of Advanced Technologies
University of Torino
Graduation: April, 2016

Valerio Sicari
Tesi di laurea magistrale in Fisica delle Tecnologie Avanzate
M.Sc. Thesis in Physics of Advanced Technologies
University of Torino
Thesis started in 2016-02

Language skills

Italian	Native speaker
English	First Certificate in English, University of Cambridge, 2002/12
French	DELF, 2003/07
Swedish	"Swedish as foreign language, Beginner's level" Umeå Universitet, 2007

IT Skills

Operating systems	Apple Mac OS X; Linux Ubuntu, Debian, Fedora; Microsoft Windows
Productivity suites	Microsoft Office, OpenOffice.org, Apple iWork
Audio-video editing	Adobe Photoshop, GIMP, Apple Logic, Final Cut, Aperture
Markup languages	Latex, HTML
Programming	C++, MPI, OpenMP, CUDA, QT4, Python
Finite Elements	Comsol Multiphysics 3.1–5, ISE TCAD 9.5

Technical computing	Wolfram Mathematica
Data acquisition	Microcal Origin, LabView

Experimental techniques

Reactive Ion Etching, Plasma etching and cleaning, keV Focused Ion Beam (FIB), Electron Beam Lithography, SEM Microscopy, electrical characterization, Ion Beam Induced Charge (IBIC) technique, MeV ion implantation, pulsed power laser milling, metal evaporation, thermal annealing, confocal fluorescence microscopy

Research activities

2010 - 2012

I graduated in **July 2009** at the University of Torino, with a curriculum in mathematical, **theoretical** and **High Energy Physics**. My Master degree Thesis, supervised by Prof. Lorenzo Magnea, was focused on Quantum Chromodynamics and involved the calculation of next-to-eikonal amplitude corrections for the **Drell-Yan process** according to an effective Feynman diagram approach proposed in [E. Laenen et al., JHEP 1 (2011) 141].

I started my **PhD** under the supervision of Prof. Ettore Vittone in **January 2010** at the group in Solid State Physics, University of Torino, where I combined my competences in theoretical modelling and numerical simulations, both by Finite Element Method and C++ code development, with the experimental activities for the fabrication and characterization of solid state devices.

The main research activity of my PhD has been the exploitation of the Ion Beam Induced Charge (IBIC) technique and the **modelling and the characterization of semiconductor devices and detectors**.
My activities were carried out in the framework of several funded projects and collaborations with national and international research institutions, such as the Micro Analytical Research Centre at the University of Melbourne (AU), the Centre for Ion Beam Applications at the National University of Singapore, the Laboratory for Ion Beam Interactions at the Rudjer Boskovic Institute (HR), the group in Industrial Engineering at the University of Roma "Tor Vergata" (I) and the INFN LABEC and National Laboratories of Legnaro (I).

The most relevant **theoretical** results consisted of a suitable model, based on the Shockley-Ramo-Gunn theory, for the description of the induced charge pulse formation in **multi-electrode devices**, and on its validation through several IBIC experiments and numerical modelling activities. My efforts resulted, in particular, in a general demonstration of th**e Gunn's theorem**, in a quantitative model describing **charge sharing effects** in semiconductor devices, and in the prediction and the measurement of **anomalous polarity** in induced charge pulses in multi-electrode **diamond detectors**.
I worked at the development and the validation of **numerical modelling** techniques for the analysis of semiconductor devices. The simulation techniques I used were the **finite element method** (FEM) approach to the **analysis of electrical and electronic properties of devices**, as well as for the simulation of induced charge pulses in IBIC experiments in 2D, 3D geometries through the implementation of the adjoint equation method. In addition, I also wrote a C++ based, open source **Monte Carlo software** equipped with a graphical user interface (the "IBIC Simulation Tool") enabling end users to perform full and realistic simulations of IBIC experiments, and I satisfactorily validated the numerical results against experimental findings in both frontal and lateral IBIC configurations.

The theoretical results are a consequence of the experimental activities I carried out for the **characterization of solid state detectors and devices**. Particularly, I studied the charge collection and charge transport properties of **diamond detectors** (as a part of the INFN DiaMed experiment and supported by the experiment "IBIC characterization of position sensing diamond detectors" in the FP7 SPIRIT framework), both at the INFN Legnaro and at the Ruder Boskovic Institute laboratories.

I have been a visiting scientist at the MARC group at the University of Melbourne in 2011 for the analysis of IBIC experiments on **position sensitive silicon detectors**, with the aim to optimize a **deterministic doping technique** for quantum computing applications.

During my PhD I also actively took part in the activities of the group in Solid State Physics at the University of Torino, aiming at the analysis of **radiation damage effects** on the electronic properties of semiconductors and insulators.
Particularly, I acquired competencies in the **ion beam micro-fabrication of buried graphitic electrodes in diamond** for bio-sensing and radiation detection applications, in the framework of the INFN DiaMed experiment and of two research projects FIRB - "Development of Micro-fabrication techniques in diamond for applications in bio-sensing and photonics" and PRIN - "Sythetic single crystal diamond dosimeters for application in clinical radiotherapy", funded by the Italian Ministry for Teaching, University and Research.

Additionally, I took part at a IAEA Coordinated Research Project (CRP) aiming at the development of a quantitative approach to **define the radiation hardness of materials**, based on the degradation of the charge transport properties of irradiated devices. In this framework, my contribution consisted of the development of an ad hoc package for the IBIC Simulation Tool software, simulating **IBIC experiments in irradiated diodes**. The software, presented in June 2013 at the 21st International Conference on Ion Beam Analsis, Seattle, USA and in the Conference proceedings, has been awarded with the Elsevier's "Best young researcher manuscript" prize.
In addition, the CRP enabled me to model, in collaboration with the CIBA group at the National University of Singapore, the **carrier diffusion mechanism in selectively proton-irradiated silicon wafers**. My modelling activity enabled to identify the role of the radiation-induced variation in the effective doping concentration to prevent the conversion of the irradiated regions to porous silicon upon electrochemical processes, allowing for the **silicon micro- and nano-machining** of free standing nanowires, photonic structures and micro-electro-mechanical systems.

My participation in the IAEA CRP network was further strengthened by a four months **internship** at the International Atomic Energy Agency in 2012, under the supervision of Dr. Aliz Simon, in which I designed an upgrade to the web-based **ion accelerator database** for the Physics Section website.

2013- 2015

During my post-doctoral fellowship at the group in Solid State Physics of the University of Torino on the FIRB project of Dr. Paolo Olivero "Development of Microfabrication techniques in diamond for applications in bio-sensing and photonics", I currently work at the microfabrication of **diamond devices** as platform for **applied photonics**.
My work is focused on the study and the characterization of **single-photon sources** in diamond excited by laser pump in **photoluminescence** regime and by electrical current in **electroluminescence** regime. Particularly, my competences in the ion-beam-micromachining of **buried graphitic electrodes** in diamond was exploited to perform electroluminescence measurements on NV centers with the purpose of fabricating electrically-driven single-photon sources. The refinement in the microfabrication techniques and the qualification of the diamond-based devices through experiments with a single-photon sensitive confocal microscope enabled to demonstrate the potential of sub-superficial graphitic electrodes at effectively stimulating **single-photon emission from individual lattice defects** in diamond.
My current activity also involves the design and the fabrication of **integrated photonic structures** (optical cavities and micro-lenses) for the enhancement of single-photon emission in monocrystalline diamond samples, by means of surface lithography and etching techniques such as keV Focused Ion Beam milling, oxygen plasma and Reactive Ion Etching.
Finally, during a three-months visit at the Institute for Quantum Optics, University of Ulm, Germany, I started new research activities on the **optical detection and control** of the **electronic and nuclear spin** of NV centers in diamond, by means of the Optically Detected Magnetic Resonance (ODMR) technique. The preparation, control and the optical readout of color centers spin has potential applications in the fields of quantum sensing, bio-sensing and quantum information research fields.

since 2016
In January 2016 I have been awarded a **Young Researcher Grant** by the 5th Scientific Commission of the Italian National Institute for Nuclear Physics (INFN). Such grant (research project "**DiESiS**" - Diamond-based Electrically-stimulated SIngle-photon Sources - **budget: 115 k€**) is focused at assessing the utilization of **ion beams** to fill the existing **gaps** in diamond fabrication for emerging **quantum technologies**.
Particularly, as the electrical control color centers and lattice defects is made difficult by the insulating properties of diamond with respect to competing materials (e.g. SiC, ^{28}Si, ...), a further refinement of the existing ion beam fabrication techniques is proposed to define **integrated multi-electrodes devices,** with the purpose of stimulating **electroluminescence**, controlling and stabilizing the **charge state of NV centers** and source static and oscillating fields for the **coherent control** and optical readout of their spin state.
In addition, the **implantation of selected impurities** in the diamond lattice will enable the investigation and qualification of **new promising color centers** (such as He-related defects) with appealing properties for quantum technology applications.

Scientific affiliations

since 2010	INFN - Italian National Institute of Nuclear Physics (group V)
since 2010	NIS - Nanostructured Interfaces and Surface, Centre of Excellence, University of Torino
since 2012	CNISM - National Inter-University Consortium for the Physics Sciences of Matter
since 2013	The CERN RD42 Collaboration

Research products

IBIC Simulation Tool
An **open source software** with graphical user interface for the simulation of IBIC experiments in 1-dimensional geometries
The code is based on a Monte Carlo approach to the solution of the continuity equations for excess charge carriers, and relies on the Shockley-Ramo-Gunn theory for the evaluation of the total induced charge. Extended information on the project is available at
http://www.dfs.unito.it/solid/RICERCA/IBA/IST.html

IBIC Tutorial
I contributed to the development of an **educational software** for the dissemination of knowledge on the IBIC technique and its theoretical foundations, features and applications.

A web version of the software is available at the following web URL:
http://www.dfs.unito.it/solid/RICERCA/IBA/IBIC.html

Awards and outreach

Mention of honor for the **poster** "Focused ion beam fabrication and IBIC characterization of a diamond decter with buried electrodes" presented at ICNMTA2010 - 12th International Conference on Nuclear Microprobe Technologies and Applications (July, 26-30 2010, Leipzig, Germany)

Winner of the Elsevier's **"Young Researcher Best Manuscript Award"** at the IBA2013 - 21st International Conference on Ion Beam Analysis (June, 23-29 2013, Seattle, USA)

Bibliometric Indexes

as of 2016, June 1st
source: ResearcherID, Thompson Reuters

First ISI Publication year	2011
Degree Thesis works	1
PhD thesis works	1
ISI-indexed publications	26
ISI-indexed publications as corresponding author	6
ISI-indexed publications as first author	7
Total number of ISI citations	82
Total number of ISI citations (articles in 2011-2015)	82
h-index	6
Average citations per publication	3.15
Average citations per publication (articles in 2011-2015)	3.90
Non-ISI publications	6
Contributed talks at conferences	12
Poster presentations at conferences	6
Seminars	4
Co-autors in talks at conferences	21
Co-author in posters at conferencs	22
ResearcherID	K-6294-2013

ISI-indexed Publications

1. P. Olivero, **J. Forneris**, M. Jaksic, Z. Pastuovic, F. Picollo, N. Skukan, E. Vittone
"Focused Ion Beam fabrication and IBIC characterization of a diamond detector with buried electrodes"
Nucl. Instr. Meth. B, 269 (2011) 2340

2. P. Olivero, **J. Forneris**, P. Gamarra, M. Jaksic, A. Lo Giudice, C. Manfredotti, Z. Pastuovic, N. Skukan, E. Vittone
"Monte Carlo analysis of a lateral IBIC experiment on a 4H-SiC Schottky diode"
Nucl. Instr. Meth. B, 269 (2011) 2350

3. J. Song, Z. Y. Dang, S. Azimi, M. B. H. Breese, **J. Forneris**, E. Vittone
"On the formation of 50 nm diameter free-standing silicon wires produced by ion irradiation"
ECS Journal of Solid State Science and Technology, 1 (2) (2012) P66

4. **J. Forneris**, D. N. Jamieson, G. Giacomini, C. Yang, E. Vittone
"Modeling of Ion Beam Induced Charge Sharing experiments for the design of high resolution position sensitive detectors"
Nucl. Instr. Meth. B 306 (2013) 169

5. **J. Forneris**, V. Grilj, M. Jaksic, A. Lo Giudice, P. Olivero, F. Picollo, N. Skukan, C. Verona, G. Verona Rinati, E. Vittone
"IBIC characterization of an ion-beam-micromachined multi-electrode diamand detector"
Nucl. Instr. Meth. B 306 (2013) 181

6. J. Song, Z. Y. Dang, S. Azimi, M. B. H. Breese, **J. Forneris**, E. Vittone
"On the formation of silicon wires produced by high-energy ion Irradiation"
Nucl. Instr. Meth. B 296 (2013) 32

7. S. Azimi, Z. Y. Dang, J. Song, M. B. H. Breese, E. Vittone, **J. Forneris**
"Defect enhanced funneling of diffusion current in silicon"
Appl. Phys. Lett. 102 (2013) 042102

8. **J. Forneris**, V. Grilj, M. Jaksic, A. Lo Giudice, P. Olivero, F. Picollo, N. Skukan, C. Verona, G. Verona Rinati, E. Vittone
"Measurement and modelling of anomalous polarity pulses in a multi-electrode diamond detector"
EPL, 104 (2013) 28005

9. Z. Pastuovic, I. Capan, R. Siegele, R. Jacimovic, **J. Forneris**, D. D. Cohen, E. Vittone
"Generation of vacancy cluster-related defects during single MeV silicon ion implantation of silicon"
Nucl. Instr. Meth. B 332 (2014) 298

10. **J. Forneris,** M. Jaksic, Z. Pastuovic, E. Vittone
"A Monte Carlo software for the 1-dimensional simulation of IBIC experiments"
Nucl. Instr. Meth. B 332 (2014) 257
Award-winner: Elsevier's IBA2013 Conference "Young researcher best manuscript" prize

11. D. Gatto Monticone, P. Traina, E. Moreva, **J. Forneris**, P. Olivero, I. P. Degiovanni, F. Taccetti, L. Giuntini, G. Brida, G. Amato, M. Genovese
"Native NIR-emitting single colour centres in CVD diamond"
New Journal of Physics 16 (2014) 053005

12. D. Gatto Monticone, K. Katamadze, P. Traina, E. Moreva, **J. Forneris**, I. Ruo Berchera, P. Olivero, I. P. Degiovanni, G. Brida, M. Genovese
"Beating Abbe diffraction limit in confocal microscopy via non-classical photon statistics"
Physical Review Letters 113 (2014) 143602

13. **J. Forneris**, A. Lo Giudice, P. Olivero, F. Picollo, A. Re, Marco Marinelli, F. Pompili, C. Verona, G. Verona Rinati, M. Benetti, D. Cannata, F. Di Pietrantonio
"A 3-dimensional interdigitated electrode geometry for the enhancement of charge collection efficiency in diamond detectors"
EPL, 108 (2014) 18001

14. L. Grassi, **J. Forneris**, D. Torresi, L. Acosta, A. Di Pietro, P. Figuera, M. Fisichella, V. Grilj, M. Jaksic, M. Lattuada, T. Mijatovic, M. Milin, L. Prepolec, N. Skukan, N. Soic, V. Tokic, M. Uroic
"Study of the inter-strip gap effects on the response of Double Sided Silicon Strip Detectors using proton micro-beams"
Nuclear Instruments and Methods in Physics Research A 767 (2014) 99

15. D. Gatto Monticone, **J. Forneris**, M. Levi, A. Battiato, F. Picollo, P. Olivero, P. Traina, E. Moreva, E. Enrico, G. Brida, I. P. Degiovanni, M. Genovese, G. Amato, L. Boarino

"Single-photon emitters based on NIR color centers in diamond coupled with solid immersion lenses"
International Journal of Quantum Information 12 (2014) 1560011

16. **J. Forneris**, A. Battiato, D. Gatto Monticone, F. Picollo, G. Amato, L. Boarino, G. Brida, I.P. Degiovanni, E. Enrico, M. Genovese, E. Moreva, P. Traina, C. Verona, G. Verona-Rinati, P. Olivero
"Electroluminescence from a diamond device with ion-beam-micromachined buried graphitic electrodes"
Nuclear Instruments and Methods in Physics Research B 348 (2015) 187

17. N. Barbero, **J. Forneris**, V. Grilj, M. Jakšic, J. Räisänen, A. Simon, N, Skukan, E, Vittone
"Degradation of the charge collection efficiency of an n-type Fz silicon diode subjected to MeV proton irradiation"
Nuclear Instruments and Methods in Physics Research B 348 (2015) 260

18. F. Picollo, A. Battiato, E. Bernardi, L. Boarino, E. Enrico, **J. Forneris**, D. Gatto Monticone, P. Olivero
"Realization of a diamond based high density multi electrode array by means of Deep Ion Beam Lithography"
Nuclear Instruments and Methods in Physics Research B 348 (2015) 199

19. F. Picollo, A. Battiato, E. Carbone, L. Croin, E, Enrico, **J. Forneris**, S. Gosso, P. Olivero, A. Pasquarelli, V. Carabelli
"Development and characterization of a diamond-insulated graphitic Multi Electrode Array Realized with Ion Beam Lithography"
Sensors (2015), 15, 515-528

20. Z. Pastuovc, I. Capan, D. D. Cohen, **J. Forneris**, N. Iwamoto, T. Ohshima, R. Siegele, N. Hoshino, H. Tsuchida
"Radiation hardness of n-type SiC Schottky barrier diodes irradiated with MeV He ion Microbeam"
Nuclear Instruments and Methods in Physics Research B 348 (2015) 233

21. D. Torresi, **J. Forneris**, L. Grassi, L. Acosta, A. Di Pietro, P. Figuera, V. Grilj, M. Jaksic, M. Lattuada, T. Mijatovic, M. Milin, L. Prepolec, N. Skukan, N. Soic, D. Stanko, V. Tokic, M. Uroic, M. Zadro
"Study of interstrip gap effects and efficiency for full energy detection of Double Sided Silicon Strip Detectors"
Journal of Physics: Conference Series 590 (2015) 012029

22. **J. Forneris**, D. Gatto Monticone, P. Traina, V. Grilj, G. Brida, G. Amato, L. Boarino, E. Enrico, I. P. Degiovanni, E. Moreva, N. Skukan, M. Jaksic, M. Genovese, P. Olivero
"Electrical stimulation of non-classical photon emission from diamond color centers by means of sub-superficial graphitic electrodes"
Scientific Reports 5 (2015) 15901.

23. J. Garcia Lopez, M. C. Jimenez-Ramos, M. Rodriguez-Ramos, **J. Forneris**, J. Ceballos
"A modified drift-diffusion model for evaluating the carrier lifetimes in radiation-damaged semiconductor detectors"
Nuclear Instruments and Methods in Physics Research B 371 (2016) 294

24. M. Mohr, F. Picollo, A. Battiato, E. Bernardi, **J. Forneris**, A. Tengattini, E. Enrico, L. Boarino, F. Bosia, H.-J. Fecht, P. Olivero
"Characterization of the recovery of mechanical properties of ion-implanted diamond after thermal annealing"
Diamond and Related Materials 63 (2016) 75

ISI-indexed publications within the CERN RD42 Collaboration

25. "A 3D diamond detector for particle tracking"
Nuclear Instruments and Methods in Physics Research A 824 (2016) 402

26. "Diamond sensors for future high energy experiments"
Nuclear Instruments and Methods in Physics Research A, doi: 10.1016/nima.2016.03.039

Selected submitted papers

a. **J. Forneris**, S. Ditalia Tchernj, A. Tengattini, V. Grilj, N. Skukan, G. Amato, L. Boarino, I. P. Degiovanni, E. Enrico, P.Traina, M. Jakšic, M. Genovese, P. Olivero
"Electroluminescence from nitrogen-vacancy and interstitial-related centers in bulk diamond stimulated by ion-beam-fabricated sub- superficial graphitic micro-electrodes"
http://arxiv.org/abs/1507.02136

b. **J. Forneris,** S. Ditalia Tchernij, A. Tengattini, G. Amato, L. Boarino, E. Enrico, V. Grilj, N. Skukan, M. Jakšic, P. Olivero
"Electrical charge state control of deep NV centers in diamond by means of sub-superficial graphitic electrodes"

c. **J. Forneris**, A. Tengattini, S. Ditalia, F. Picollo, A. Battiato, P. Traina, I. P. Degiovanni, V. Grilj, N. Skukan, M. Jakšic, M. Genovese, P. Olivero
"Creation and characterization of He-related color centers in diamond"

Non-ISI publications

1. A. Re, **J. Forneris**, A. Lo Giudice, P. Olivero, F. Picollo, P. De Remigis, M. Marinelli, F. Pompili, C. Verona, G. Verona Rinati, M. Benetti, D. Cannatà, F. Di Pietrantonio, L. La Torre, V. Rigato
"IBIC characterisation of a diamond detector with 3-dimensional inter-digitated electrode geometry"
Laboratori Nazionali di Legnaro Annual Report 2014 (241): 147-148 (2015), ISSN: 1828-8561

2. A. Battiato, M. Capelli, V. Carabelli, E. Carbone, **J. Forneris**, C. Franchino, L. Guarina, L. La Torre, F. Picollo, P. Olivero, V. Rigato, A. Tengattini

"Realization of nano-diamond fluorescent markers for in-vitro cell imaging by means of MeV proton implantation"
Laboratori Nazionali di Legnaro Annual Report 2014 (241): 143-144(2015), ISSN: 1828-8561

3. **J. Forneris**, V. Grilj, M. Jaksic, N. Skukan, C. Verona, G. Verona-Rinati, A. Lo Giudice, P. Olivero, F. Picollo, E. Vittone
"Focused ion beam micro-fabrication and ibic characterization of a multi- electrode diamond detector with buried graphitic electrodes",
Proceedings of the International Conference "Carbon 2013"
14-19 July 2013, Rio de Janeiro, Brasil), contribution n. 612

4. D. Gatto Monticone, P. Traina, E. Moreva, **J. Forneris**, M. Levi, G. Brida, I. P. Degiovanni, G. Amato, L. Boarino, P. Olivero, M. Genovese
"High performing SPS based on native NIR-emitting single colour centers in diamond" Proceedings of "SPIE Photonics Europe"
vol. 9136, p. 913624, DOI: 10.1117/12.2051714 (2014)
Nonlinear Optics and Its Applications VIII and Quantum Optics III,
April, 14-17 2014, Brussels, Belgium

5. D. Torresi, **J. Forneris**, L. Grassi, L. Acosta, A. Di Pietro, P. Figuera, V. Grilj, M. Jakšic, M. Lattuada, T. Mijatovic, M. Milin, L. Prepolec, N. Skukan, N. Soic, D. Stanko, V. Tokic, M. Uroic, M. Zadro
"The sneaky interstrip gap of double sided silicon strip detector"
AIP Conf. Proc. **1681**, 030003 (2015)

6. **J. Forneris**, P. Traina, E. Moreva, A. Tengattini, D. Gatto Monticone, C. Enrico Bena, I. Ruo Berchera, A. Meda, A. Avella, A. Caprile, A. Magni, G. Brida, I. P. Degiovanni, P. Olivero, M. Genovese
"Recent progresses in quantum imaging real applications"
Proc. SPIE 9615, Quantum Communications and Quantum Imaging XIII, 961502

7. D. Torresi, **J. Forneris**, L. Grassi, L. Acosta, A. Di Pietro, P. Figuera, M. Fisichella, V. Grilj, M. Jakic, M. Lattuada, T. Mijatovic, M. Milin, L. Prepolec, N. Skukan, N. Soic, D. Stanko, V. Tokic, M. Uroic, M. Zadro
"Effects of the interstrip gap on the efficiency and response of Double Sided Silicon Strip Detectors"
EPJ Web of Conferences 117 (2016) 10009.

Peer Reviewing

since 2013 Nuclear Instruments and Methods in Physics Research B, Elsevier
23rd Ion Beam Analysis Conference Special Issue

since 2015 Surface & Coatings Technology, Elsevier

Organization of Workshops and Meetings

2016 International Atomic Energy Agency Technical Meeting TM-52976
"Spatio-temporal structural evolution of matter induced by ion beams: towards new quantum technologies"
May, 23-27 2016, Torino, Italy
Member of the Local Organizing Committee

Conferences and Workshops

2016 International Atomic Energy Agency Technical Meeting TM-52976
"Spatio-temporal structural evolution of matter induced by ion beams: towards new quantum technologies"
May, 23-27 2016, Torino, Italy

2015 XX Hasselt Diamond workshop
February, 25-27 2015, Hasselt, Belgium

Fotonica 2015
Italian Congress on Photonics Technologies
May, 6-8 2015, Torino, Italy

Diamond 2015
International Conference on Diamond and Carbon Materials 2015
September, 6-10 2015, Bad Homburg, Germany

2014 ICNMTA2014
13th International Conference on Nuclear Microprobe Technology and Applications
July, 6-11 2014, Padova, Italy

INFN and IAEA Joint Training Course on Ion Beam Microscopy Techniques
July, 3-4 2014, INFN National Laboratories of Legnaro, Padova, Italy

CAARI 2014
23rd Conference on Applications for Accelerators in Research and Industry
May, 25-30 2014, San Antonio, Texas, USA

2013 FisMat 2013
Italian National Conference on Condensed Matter Physics
September, 9-13 2013, Milan, Italy

IBA 2013
21st International Conference on Ion Beam Analysis
June, 23-29 2013, Seattle, USA

E-MRS 2013 Spring Meeting
Symposium M, Basic research on ionic-covalent materials for nuclear applications
May, 27-31 2013, Strasbourg, France

2° International Atomic Energy Agency Research Coordination
Meeting "Utilization of Ion Accelerators for Studying and Modelling of Radiation Induced Defects in Semiconductors and Insulators"
May, 13-17 2013, Vienna, Austria

2012 ICTP-IAEA Workshop on Physics of Radiation Effect and its Simulation for Non-Metallic Condensed Matter
August, 13-24 2012 Trieste, Italy

ICNMTA2012
13th International Conference on Nuclear Microprobe Technology and Applications
July, 22-27 2012 Lisbon, Portugal

2nd RBI Diamond Detectors Workshop - Development and applications
May, 7-9 2012 Plitvice Lakes, Croatia

2011 Diamond 2011 - 22nd European Conference on Diamond, Diamond-Like Materials, Carbon Nanotubes and Nitrides
September, 04-08 2011 Garmisch - Partenkirchen, Germany

"Diamond & new technologies" workshop
November, 14 2011 Physics Department, University of Torino, Italy

2010 ICNMTA2010
12th International Conference on Nuclear Microprobe Technology and Applications
July, 26-30 2010 Leipzig, Germany

ESOF2010 - EuroScience Open Forum
July, 02-07 2010, Torino, Italy

Seminars

2015 University of Ulm, Institute for Quantum Optics, Germany
"MeV ion beams fabrication of diamond: electroluminescence from color centers stimulated by sub-superficial graphitic electrodes"
J. Forneris, January, 13 2015

2012 University of Torino**,** Physics Department
"IBIC Characterization of diamond detectors"
J. Forneris, February, 22 2012

2011 University of Torino**,** Physics Department
"Deep Ion Beam Lithography fabrication and IBIC analysis of diamond detectors with buried graphitic micro-electrodes"
J. Forneris, November 14, 2011

University of Melbourne, School of Physics
"Ion Beam Induced Charge: computational tools and numerical simulations"
J. Forneris, May, 25 2011

Conference/workshop contributions

Talks (* presenting author)

33 talk contributions, including
12 contributions as presenting author

2010

1. **J. Forneris**, A. Lo Giudice, C. Manfredotti*, M. Marinelli, E. Milani, P. Olivero, F. Picollo, G. Prestopino, A. Re, G. Verona-Rinati, E. Vittone "Charge collection efficiency mapping of a CVD diamond Schottky diode"
RESMDD10 - 8th international Conference on Radiation Effects on Semiconductor Materials Detectors and Devices
October 12-15 2010, Florence, Italy

2011

2. **J. Forneris***, L. La Torre, A. Lo Giudice, C. Manfredotti, M. Marinelli, P. Olivero, F. Picollo, A. Re, C. Verona, G. Verona-Rinati, E. Vittone
"Fabrication with ion beam lithography and IBIC characterization of a particle detector in single-crystal diamond with integrated graphitic micro-electrodes"
Diamond 2011 Conference
September, 04-08 2011 Garmisch - Partenkirchen, Germany

3. **J. Forneris,** M. Jakšic, P. Olivero, Z. Pastuovic, F. Picollo, N. Skukan E. Vittone*
"Focused ion beam fabrication and IBIC characterization of a diamond detector with buried interdigitated electrodes"
XCVII National Congress of the Italian Physics Society
September, 26-30 2011, L'Aquila, Italy

2012

4. **J. Forneris***, D. N. Jamieson, C. Yang, G. Giacomini, E. Vittone
"Modeling of Ion Beam Induced Charge sharing experiments for the design of high resolution position sensitive detectors"
ICNMTA 2012 Conference
July, 22-27 2012 Lisboa, Portugal

5. **J. Forneris***, V. Grilj, M. Jaksic, A. Lo Giudice, P. Olivero, F. Picollo, N. Skukan, C. Verona, G. Verona-Rinati, E. Vittone
"Sharing of anomalous polarity pulses in a ion-beam-micromachined multi-electrode diamond detector"
2nd RBI Diamond Detectors Workshop
May, 7-9 2012 Plitvice Lakes, Croatia

6. F. Picollo*, P. Olivero, **J. Forneris**, M. Jaksic, M. Marinelli, Z. Pastuovic, N. Skukan, C. Verona, G. Verona Rinati, E. Vittone
"Focused ion beam fabrication of a diamond detector with buried graphitic electrodes"
2nd RBI Diamond Detectors Workshop
May, 7-9 2012, Plitvice Lakes, Croatia

7. **J. Forneris**, P. Olivero, F. Picollo, E. Vittone*
"Modelling and Validation of Ion Beam Induced Damage in Semiconductors"
1° International Atomic Energy Agency Research Coordination Meeting "Utilization of Ion Accelerators for

Studying and Modelling of Radiation Induced Defects in Semiconductors and Insulators"
March, 19-23 2012, Vienna, Austria

2013

8. **J. Forneris***, V. Grilj, M. Jaksic, N. Skukan, C. Verona, G. Verona-Rinati, P. Olivero, F. Picollo, E.Vittone
"Fabrication and characterization by means of focused ion beams of a diamond detector with integrated graphitic micro-electrodes"
FisMat 2013, Italian National Conference on Condensed Matter Physics
September, 9-13 2013, Milan, Italy

9. **J. Forneris***
"A Monte Carlo software for the 1-dimensional simulation of IBIC experiments"
21st International Conference on Ion Beam Analysis
June, 23-29 2013, Seattle, USA

10. **J. Forneris***, V. Grilj, M. Jaksic, A. Lo Giudice, P. Olivero, F. Picollo, N. Skukan, C. Verona, G. Verona-Rinati, E. Vittone
"Ion beam micro-fabrication and IBIC characterization of a diamond detector with buried graphitic micro-electrodes"
E-MRS Spring 2013 Meeting - Symposium M, Basic research on ionic-covalent materials for nuclear applications
May, 27-31 2013, Strasbourg, France

11. **J. Forneris***, P. Olivero, F. Picollo, E. Vittone
"A Monte Carlo software with graphical user interface for the simulation of IBIC experiments in 1-dimensional geometries"
2° International Atomic Energy Agency Research Coordination
Meeting "Utilization of Ion Accelerators for Studying and Modelling of Radiation Induced Defects in Semiconductors and Insulators"
May, 13-17 2013, Vienna, Austria

12. **J. Forneris**, V. Grilj, M. Jaksic, N. Skukan, C. Verona, G. Verona-Rinati, A. Lo Giudice, P. Olivero, F. Picollo*, E. Vittone
"Focused ion beam micro-fabrication and IBIC characterization of a multi-electrode diamond detector with buried graphitic electrodes"
Carbon 2013 Conference
July, 14-19 2013, Rio de Janeiro, Brazil

13. Z. Pastuovic*, Ivana Capan, A. Uedono, **J. Forneris**, R. Siegele,
E. Vittone, D. Cohen
"Vacancy related cluster defects created by single heavy ion implantation of silicon"
21st International Conference on Ion Beam Analysis
June, 23-29 2013, Seattle, USA

14. P. Olivero*, **J. Forneris**, V. Grilj, M. Jaskic, A. Lo Giudice, Z. Pastuovic, F. Picollo, A. Re, N. Skukan, C. Verona, G. Verona-Rinati, E. Vittone,
"IBIC characterization of homoepitaxial CVD diamond detectors at the University of Torino"
RD42 Collaboration Meeting
May, 20 2013, Geneva, Switzerland

2014

15. **J. Forneris***, D. Gatto Monticone, P. Traina, V. Grilj, G. Brida, I. P. Degiovanni, E. Moreva, N. Skukan, M. Jaksic, M. Genovese, P. Olivero
"Electroluminescence of NV centers in diamond induced by ion-beam fabricated buried graphitic

electrodes"
CAARI 2014 - 23rd Conference on Applications for Accelerators in Research and Industry
May, 25-30 2014, San Antonio, Texas, USA

16. A. Simon*, **J. Forneris**, R. Li, J. Demarche, M. Levay, V. Baldania, R. Kaiser
"The IAEA new Accelerator Knowledge Portal"
CAARI 2014 - 23rd Conference on Applications for Accelerators in Research and Industry
May, 25-30 2014, San Antonio, Texas, USA

17. P. Traina*, D. Gatto Monticone, E. V. Moreva, **J. Forneris**, M. Levi; K. Katamadze, G. Brida, I. P. Degiovanni, E. Enrico, G. Amato, L. Boarino, P. Olivero, M. Genovese
"High-performing SPS based on native NIR-emitting single colour centers in diamond"
2014 SPIE Photonics Europe Conference
April, 14-17 2014, Brussels, Belgium

18. Z. Pastuovic*, E. Vittone, I. Capan, R. Siegele, T. Ohshima, N. Iwamoto, **J. Forneris**, N. Hoshino, H. Tsuchida, D. D. Cohen
"Radiation Hardness of n-type SiC Schottky Diodes"
ICNMTA2014 - 13th International Conference on Nuclear Microprobe Technology and Applications
July, 6-11 2014, Padova, Italy

19. I. P. Degiovanni*, D. Gatto Monticone, K. Katamadze, **J. Forneris**, E. Moreva, P. Traina, I. Ruo Berchera, G.Brida, P. Olivero, M. Genovese
"Sub-diffraction imaging of single-photon emitters"
Invited talk
LPhys 14 - 23rd Annual International Laser Physics Workshop
July, 14-18 2014, Sofia, Bulgaria

20. D. Gatto Monticone*, G. Brida, I. Degiovanni, **J. Forneris**, K. Katamadze, E. Moreva, F. Piacentini, I. Ruo Berchera, P. Traina, P. Olivero, M. Genovese
"Second- and third-order autocorrelation functions increase resolution of confocal fluorescence microscopy"
Quantum 2014 Workshop - Advanced in Foundations of Quantum Mechanics and Quantum Information with atoms and photons
May, 25-31 2014, Torino, Italy

21. D. Gatto Monticone, K. Katamadze, **J. Forneris**, E. Moreva, P. Traina, I. Ruo Berchera, I. Degiovanni, P. Olivero, M. Genovese
"A novel optical super-resolution technique exploiting second-order autocorrelation function"
25th International Conference on Diamond and Carbon Materials
September, 7-11 2014, Madrid, Spain

2015

22. **J. Forneris***, P. Traina, D. Gatto Monticone, A. Tengattini, V. Grilj, G. Brida, G. Amato, L. Boarino, E. Enrico, I. P. Degiovanni, E. Moreva, N. Skukan, M. Jakšić, C. Verona, G. Verona-Rinati, M. Genovese, P. Olivero
"Electrical stimulation of colour centres in diamond with ion-beam- micromachined sub-superficial graphitic electrodes"
Hasselt Diamond Workshop 2015
Hasselt, Belgium, February 25-27, 2015

23. A. Tengattini, **J. Forneris***, P. Traina, D. Gatto Monticone, V. Grilj, G. Brida, G. Amato, L. Boarino, E. Enrico, I. P. Degiovanni, E. Moreva, N. Skukan, M. Jakšić, C. Verona, G. Verona-Rinati, M. Genovese, P. Olivero
"Fabrication of single-photon electroluminescent devices in single-crystal diamond by means of MeV ion

microbeams"
Fotonica 2015 - Italian Congress on Photonics Technologies
May, 6-8 2015, Torino, Italy

24. A. Tengattini*, **J. Forneris**, C. Enrico Bena, P. Traina, E. Moreva, G. Brida, I. Degiovanni, M. Genovese, P. Olivero
"Production and optical characterization of nitrogen-vacancy single photon emitters in diamond nanocrystals"
Fotonica 2015 - Italian Congress on Photonics Technologies
May, 6-8 2015, Torino, Italy

25. D. Gatto Monticone, K. Katamadze, P. Traina, E. Moreva, **J. Forneris**, I. Ruo-Berchera*, P. Olivero, I. P. Degiovanni, G. Brida, M. Genovese
"Quantum enhanced optical imaging: sensitivity beyond classical limits exploiting quantum correlated states"
Fotonica 2015 - Italian Congress on Photonics Technologies
May, 6-8 2015, Torino, Italy

26. **J. Forneris**, F. Bosia*, P. Traina, D. Gatto Monticone, A. Tengattini, V. Grilj, G. Brida, G. Amato, L. Boarino, E. Enrico, I. P. Degiovanni
"Stimulation of the electroluminescence of colour centres in diamond with sub-superficial graphitic micro-electrodes, i, E. Moreva, N. Skukan, M. Jakšić, C. Verona, G. Verona-Rinati, M. Genovese, P. Olivero"
NDNC 2015 - 9th International Conference on New Diamond and Nano Carbons
May, 24-28 2015, Shizuoka, Japan

27. P. Olivero, F. Bosia*, D. Gatto Monticone, K. Katamadze, **J. Forneris**, E. Moreva, P. Traina, I. Ruo Berchera, I. P. Degiovanni, G. Brida, M. Genovese
"Use of nonclassical photon statistics for the sub-diffraction imaging of color centers in diamond"
NDNC 2015 - 9th International Conference on New Diamond and Nano Carbons
May, 24-28 2015, Shizuoka, Japan

28. P. Olivero*, D. Gatto Monticone, K. Katamadze, **J. Forneris**, E. Moreva, P. Traina, I. Ruo Berchera, I. P. Degiovanni, G. Brida, M. Genovese
"Super-resolution Imaging of Single Color Centers in Diamond via Nonclassical Photon Statistics"
MRS Spring 2015 Meeting
April, 6-10 2015, San Francisco, USA

29. **J. Forneris***, P. Traina, S. Ditalia Tchernij, A. Tengattini, F. Picollo, V. Grilj, G. Brida, G. Amato, L. Boarino, E. Enrico, I. P. Degiovanni, E. Moreva, N. Skukan, M. Jakšic, C. Verona, G. Verona-Rinati, M. Genovese, P. Olivero
"Electrical excitation and charge state control of deep colour centres in diamond by means of sub-superficial graphitic micro-electrodes"
Diamond 2015 - International Conference on Diamond and Carbon Materials 2015
September, 6-10 2015, Bad Homburg, Germany

30. Z. Pastuovic*, I. Capan, **J. Forneris**, R. Siegele, E. Vittone, T. Ohshima
"Charge collection efficiency in semiconductor diodes irradiated by a raster scanned light ion microbeam: experiments and modelling"
ICDS 2015 - 28th International Conference on Defects in Semiconductors
July, 27-31 2015, Espoo, Finland

31. I. P. Degiovanni*, P. Traina, D. Gatto Monticone, I. Ruo Berchera, E. Moreva, K. Katamadze, **J. Forneris**, G. Brida, P. Olivero, M. Genovese
"Beating the Diffraction limit with single-photon emitters"
Single Photon Workshop 2015
July, 13-17 2015, Geneva, Switzerland

32. I. P. Degiovanni*, D. Gatto Monticone, K. Katamadze, **J. Forneris**, E. Moreva, P. Traina, I. Ruo Berchera, G. Brida, P. Olivero, M. Genovese
"Sub-diffraction imaging of colour-centres in diamond"
NOMADS Workshop - Novel Materials and Devices for NEMS
February, 26 2015, Italian National Institute for Metrological Research (INRiM), Torino, Italy

2016

33. **J. Forneris***
"Ion beam fabrication of diamond-based devices for quantum optics and quantum sensing applications"
IAEA Technical Meeting TM-52976
"Ion Beam-Induced Spatio-Temporal Structural Evolution of Matter: Towards New Quantum Technologies"
May, 23-27 2016, University of Torino, Italy

Poster presentations (* presenting author)

28 poster contributions, including
6 contributions as presenting author

2010

1. P. Olivero, **J. Forneris***, P. Gamarra, M. Jaksic, A. Lo Giudice, C. Manfredotti, Z. Pastuovic, N. Skukan, E. Vittone
"Lateral IBIC analysis of a 4H-SiC Schottky diode"
ICNMTA 2010 Conference
July, 26-30 2010 Leipzig, Germany

2. P. Olivero, **J. Forneris***, M. Jaksic, Z. Pastuovic, N. Skukan, F. Picollo,
E. Vittone
"Focused ion beam fabrication and IBIC characterization of a diamond detector with buried interdigitated electrodes"
ICNMTA 2010 Conference
July 26-30, 2010 Leipzig, Germany

2011

3. F. Picollo*, P. Olivero, D. Gatto Monticone, L. Boarino, E. Enrico, B. Fairchild, **J. Forneris**, M. Jaksic, Z. Pastuovic, S. Prawer, S. Rubanov, N. Skukan, E. Vittone
"Buried graphitic channels micro-fabricated in synthetic single-crystal diamond by deep ion beam lithography: structural and electrical characterization and application as electrodes for three-dimensional detectors
Hasselt Diamond Workshop 2011
Hasselt, Belgium, February 21-23, 2011

2012

4. **J. Forneris***, P. Gamarra, M. Jaksic, C. Manfredotti, P. Olivero, Z. Pastuovic, N. Skukan, E. Vittone
"Lateral IBIC characterization of charge transport properties of a 4H-SiC Schottky diode"
ICTP-IAEA Workshop on Physics of Radiation Effect and its Simulation for Non-Metallic Condensed Matter
August, 13-24 2012 Trieste, Italy

5. **J. Forneris***, V. Grilj, M. Jaksic, A. Lo Giudice, P. Olivero, F. Picollo, N. Skukan, C. Verona, G. Verona Rinati, E. Vittone
"IBIC characterization of a Ion-beam-micomachined multi-electrode-diamond detector"
ICNMTA 2012 Conference
July, 22-27 2012 Lisboa, Portugal

2013

6. I. P. Degiovanni*, F. Piacentini, P. Traina, I. Ruo Berchera, E. Moreva, G. Brida, L. Boarino, G. Amato, M. Genovese, A. Migdall, A. Tosi, A. Della Frera, A. Bahgat Shehata, C. Scarcella, A. Gulinatti, M. Ghioni, S. Polyakov, A. Giudice, D. Gatto Monticone, M. Levi, **J. Forneris**, P. Olivero
"Towards ideal single-photon sources: 'noise-free' heralded sources vs single quantum emitters"
Single Photon Workshop 2013
October, 15-18 2013, Oak Ridge National Laboratory, USA

7. P. Olivero*, G. Amato, N. Argiolas, A. Battiato, M. Bazzan, E. Bernardi, L. Boarino, F. Bosia, S. Calusi, V. Carabelli, E. Carbone, I. P. Degiovanni, E. Enrico, **J. Forneris**, D. Gatto Monticone, M. Genovese, S. Gosso, L. Giuntini, S. Lagomarsino, M. Massi, E. Moreva, F. Picollo, S. Sciortino, A. Sordini, A. Sytchkova, P. Traina, C. Verona, G. Verona-Rinati, M. Vannoni, E. Vittone
"Micro- and Nano-fabrication in artificial diamond for applications in bio-sensing"
NanotechItaly 2013 Conference
November, 27-29 2013, Venice, Italy

2014

8. P. Olivero, D. Gatto Monticone*, P. Traina, E Moreva, J. Forneris, I. P. Degiovanni, F. Taccetti, L. Giuntini, G. Brida, G. Amato, M. Genovese
"Near-infrared emitting single colour centres in CVD diamond
Quantum 2014 Workshop - Advanced in Foundations of Quantum Mechanics and Quantum Information with atoms and photons
May, 25-31 2014, Torino, Italy

9. **J. Forneris**, D. Gatto Monticone*, P. Olivero , N. De Leo, E. Enrico, M. Fretto, L. Boarino, G. Amato, I. P. De Giovanni, P. Traina, P. Genovese
"Integrated optical structures for the enhancement of single-photon emission rate in diamond color centers"
Quantum 2014 Workshop - Advanced in Foundations of Quantum Mechanics and Quantum Information with atoms and photons
May, 25-31 2014, Torino, Italy

10. **J. Forneris*** D. Gatto Monticone, P. Olivero V. Grilj, , N. Skukan, M. Jaksic, P. Traina, G. Amato, L. Boarino, G. Brida, I. P. Degiovanni, E. Enrico, E. Moreva, M. Genovese
"Ion-beam-fabrication of buried graphitic electrodes for the excitation of electroluminescent NV centers in diamond"
ICNMTA2014 - 13th International Conference on Nuclear Microprobe Technology and Applications
July, 6-11 2014, Padova, Italy

11. **J. Forneris*** J. Forneris, A. Lo Giudice, P. Olivero, F. Picollo, E. Vittone**,** V. Grilj, N. Skukan, M. Jaksic, C. Verona, G. Verona-Rinati, E. VIttone
"IBIC mapping of anomalous polarity pulses in a multi-electrode diamond detector"
ICNMTA2014 - 13th International Conference on Nuclear Microprobe Technology and Applications
July, 6-11 2014, Padova, Italy

12. **J. Forneris**, V. Grilj, M. Jakšic, J. Raisanen, N. Skukan, A. Simon, E. Vittone*
"Degradation of the charge collection efficiency of an n-type Fz silicon diode subjected to MeV proton irradiation"

ICNMTA2014 - 13th International Conference on Nuclear Microprobe Technology and Applications
July, 6-11 2014, Padova, Italy

13. **J. Forneris**, K. Katamadze, D. Gatto Monticone, E. Moreva, P. Traina, I. Ruo Berchera, I. Degiovanni, P. Olivero, G. Brida, M. Genovese
"Super-resolution microscopy of diamond colour centres using second- and third-order autocorrelations"
Hasselt Diamond Workshop 2014
Hasselt, Belgium, February 19-21, 2014

14. M. Marinelli, F. Pompili, G. Prestopino, C. Verona*, G. Verona-Rinati, **J. Forneris**, A. Lo Giudice, P. Olivero, F. Picollo, A. Re, M. Benetti , D. Cannatà, F. Di Pietrantonio
"A 3-dimensional interdigitated electrode geometry for the enhancement of charge collection in diamond detectors"
Hasselt Diamond Workshop 2014
Hasselt, Belgium, February 19-21, 2014

15. A. Di Pietro*, D. Torresi, **J. Forneris**, L. Grassi, L. Acosta, P. Figuera, V. Grilj, M Jaksic, M. Lattuada, T. Mijatovic, M. Milin, L. Prepolec, N. Skukan, N. Soic, D. Stanko, V. Tokic, M. Uroic, M. Zadro
"Study of Interstrip Gap Effects and Efficiency for Full Energy Eetection of Double Sided Silicon Strip Detectors"
ARIS 2014 - Advances in Radioactive Isotope Science
June, 1-6 2014, Tokyo, Japan

2015

16. P. Traina*, E. Moreva, **J. Forneris**, K. Katamadze, D. Gatto Monticone, M. Levi, G. Brida, I. Ruo Berchera, E. Enrico, G. Amato, L. Boarino, P. Olivero, M. Genovese
"Exploiting Colour Centres in Diamond at INRiM: from "on-demand" single photons to super-resolved confocal microscopy"
"Fundamental Physics with Light & Atoms" Workshop,
January, 27 2015, INRiM, Torino, Italy

17. I. P. Degiovanni*, P. Traina, D. Gatto Monticone, P. Olivero, **J. Forneris**, I. Ruo Berchera, G. Brida, E. Moreva, M. Genovese, K. Katamadze
"Employment of non-classical photon statistics for the sub-diffraction imaging of color centers in diamond"
NOMADS Workshop - Novel Materials and Devices for NEMS
February, 26 2015, Italian National Institute for Metrological Research (INRiM), Torino, Italy

18. I. P. Degiovanni*, **J. Forneris**, P. Traina, D. Gatto Monticone, A. Tengattini, V. Grilj, G. Brida, G. Amato, L. Boarino, E. Enrico, E. Moreva, N. Skukan, M. Jaksic, C. Verona, G. Verona-Rinati, M. Genovese, P. Olivero
"Electrical stimulation of colour centres in diamond with ion-beam- micromachined sub-superficial graphitic electrodes",
NOMADS Workshop - Novel Materials and Devices for NEMS
February, 26 2015, Italian National Institute for Metrological Research (INRiM), Torino, Italy

19. A. Angelini, A. Tengattini*, **J. Forneris**, C. Enrico Bena, N. De Leo, L. Boarino, I. P. Degiovanni, M. Genovese, P. Olivero, E. Descrovi
"A dielectric resonant substrate for highly directional extraction of fluorescence from defects in diamonds"
Fotonica 2015 - Italian Congress on Photonics Technologies
May, 6-8 2015, Torino, Italy

20. J. Garcia Lopez*, M. C. Jimenez-Ramos, M. Rodriguez-Ramos, **J. Forneris**, J. Ceballos
"A modified drift-diffusion model for evaluating the carrier lifetimes in radiation-damaged semiconductor detectors"
IBA 2015 - 22nd Ion Beam Analysis Conference

June, 14-19 June, Opatja, Croatia

21. A.D.C Alves, **J. Forneris**, K. Ganesan, J. Davis, A. Rosenfeld, D.N. Jamieson*
"A Diamond-Based Radiation Detector with Exceptionally Long Charge Collection Distance"
IBA 2015 - 22nd Ion Beam Analysis Conference
June, 14-19 June, Opatja, Croatia

22. A. Tengattini, A. Battiato, E. Bernardi*, M. Capelli, V. Carabelli, E. Carbone, **J. Forneris**, C. Franchino, L. Guarina, F. Picollo, P. Olivero
"Nanoscale Bio-Imaging of In-Vitro Cells Using Nano-Diamond Fluorescent Markers"
Nano-bio imaging workshop
April, 30 2015, CNR Research Area, Bologna, Italy

23. A. Angelini, N. De Leo*, L. Boarino, M. Fretto, I. Degiovanni, P. Olivero, A. Tengattini, **J. Forneris**, C. E. Bena, E. Descrovi
"Nanophotonic devices for photon management"
Metrology, Measurements and light, Workshop
May, 20 2015, Italian National Institute for Metrological Research (INRiM), Torino, Italy

24. P. Traina*, E. Moreva, **J. Forneris**, A. Tengattini, M. Levi, C. Enrico Bena, G. Brida, I. Ruo Berchera, E. Enrico, G. Amato, L. Boarino, N. De Leo, P. Olivero, I. P. Degiovanni, M. Genovese
"Nano-Candela: a lighthouse @ nanoscale – Single photon sources (SPS) as standard for radiometry",,
Metrology, Measurements and light, Workshop
May, 20 2015, Italian National Institute for Metrological Research (INRiM), Torino, Italy

25. Z. Pastuovic, E. Vittone, I. Capan, M. Jaksic, R. Siegele, J. Forneris, G. Vizkelethy
"A new experimental tool for studies of low level radiation damage in semiconductor materials and devices"
ICDS2015 - 28th International Conference on Defects in Semiconductors
July, 27-31 2015, Helskinki, Finland

2016

26. S. Ditalia Tchernij, **J. Forneris**, A. Tengattini, F. Picollo, A. Battiato, E. Enrico, V. Grilj, N. Skukan, G. Amato, L. Boarino, M. Jakšic, P. Olivero
"Electrical control of NV centers with sub-superficial graphitic micro-electrodes"
Diadems Summer School "Diamond and Spins"
April, 26 - May, 6 2016, Cargèse, France

27. **J. Forneris**, A. Tengattini, S. Ditalia Tchernij, F. Picollo, A. Battiato, P. Traina, E. Moreva, I.P. Degiovanni, E. Enrico, L. Boarino, G. Amato, N. Skukan, V. Grilj, M. Jakšic, M. Genovese, P. Olivero, E. Vittone
"Ion microbeam fabrication techniques for addressing luminescent defects in diamond"
ICNMTA2016 - 15th International Conference on Nuclear Microprobe Technologies and Applications
July, 31 - August, 5 2016 - Lanzhou, China

28. F. Picollo, A. Battiato, L. Boarino, S. Ditalia, E. Enrico, **J. Forneris**, M. Jakšic, N. Skukan, A. Tengattini, P. Olivero, E. Vittone
"Diamond microfluidic channels obtained with ion beam lithography"
ICNMTA2016 - 15th International Conference on Nuclear Microprobe Technologies and Applications
July, 31 - August, 5 2016 - Lanzhou, China

Funded projects and experiments

as Principal Investigator

2016-2017 "DIESIS" Research project - Grant for Young Researchers
"Electrically controlled diamond-based single-photon sources", funded by the 5th National Commission of the Italian National Institute of Nuclear Physics (INFN)
Budget: 120,000 €

as Coordinator/Spokeperson

2016 "Dia.Color" - Fabrication of luminescent defects in artificial diamond
Beamtime at the INFN Laboratori Nazionali del Sud, Catania

2016 "Ion-beam fabrication of artificial diamond for the characterization and the electrical control of single-photon sources"
Experiment in the CERIC-ERIC - European Research Infrastructure Consortium. Funded by the European Commission.

2011 Experiment "IBIC characterization of position sensing diamond detectors", "SPIRIT" Integrated Infrastructure Initiative
Funded by the European Commission, FP7 "Capacities" Framework

as Co-investigator

2010-2012 PRIN (Project of National Interest) "Sythetic single crystal diamond dosimeters for application in clinical radiotherapy"
Funded by Italian Ministry for Teaching, University and Research (MIUR)
Coordinator: Prof. Marco Marinelli (University of Roma "Tor Vergata")
Local coordinator: Dr. Alessandro Lo Giudice (University of Torino)

2011 Experiment "FARE: FAsci Rarefatti in Esterno"
Funded by INFN
Capacities" programme
Coordinator: Dr. Paolo Olivero

2011 Experiment "Ion beam microfabrication of artificial diamond", within "SPIRIT" Integrated Infrastructure Initiative
Funded by the European Commission, FP7 "Capacities" Framework
Coordinator: Dr. Paolo Olivero

2011-2015 Research agreement n. 17028 between International Atomic Energy Agency (IAEA) and Experimental Physics Department, University of Torino
"Modelling and validation of ion beam induced damage in semiconductors"
Coordinator: Prof. Ettore Vittone (University of Torino)

2012-2015 Experiment "Development of microfabrication techniques in diamond for applications in bio-sensing and photonics"
Funded by Italian Ministry for Teaching, University and Research (MIUR) "FIRB - Future in Research 2010" programme
Coordinator: Dr. Paolo Olivero

2012-2013 INFN-DIAMED project, "Development of innovative dosimeters for applications in advanced radiotherapy applications"
Funded by INFN
Coordinator: prof. Gianluca Verona-Rinati (University of Roma "Tor Vergata")
Local coordinator: Dr. Alessandro Lo Giudice (University of Torino)

since 2013 Experiment "Dia.Fab." at the AN2000 microbeam line AN2000 INFN National Laboratories of Legnaro
Coordinator: Dr. Federico Picollo

2013-2015 Project "Advanced Diamond-based Nano-Technologies" (A.Di.N-Tech.)
Funded by the University of Torino, "University Research Projects - Junior PI Grants" scheme
Coordinator: Dr. Paolo Olivero

2014-2015 Project "DINAMO - Development of ion beam nanofabrication techniques in diamond for applications in bio-sensing" (2014-2015)
Funded by INFN - CSN5
Coordinator: Dr. Federico Picollo

References

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Istituto Nazionale di Ricerca Metrologica (INRiM)
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