Curriculum vitae

Personal information

Name: Virginia Boldrini

Via Maria Bellonci 21, 44123, Ferrara, Italia

virginia.boldrini89@gmail.com

Sex: Female

Nationality: Italian

Work experience

01/03/2019 to present:

Post-doctoral researcher at:
CNR Institute for Microelectronics and Microsystems (CNR-IMM), via Gobetti 101, Bologna.
Research topic: Silicon Carbide for power electronics.

From 21/06/2018 to 09/07/2018:

Expert teacher for 4 summer physics courses at:
Liceo Scientifico "A. Roiti" (high school), Viale Leopardi 64, 44121 Ferrara.

From 28/11/2017 to 14/06/2018:

Substitute physics teacher at:
Liceo Scientifico "A. Roiti" (high school), Viale Leopardi 64, 44121 Ferrara.
With the following tasks:

- physics courses for three classes;
- hours of afternoon training (help desk);
- development of new Physics Lab experiments, to improve the school offer.

From 2007 to 2013:

Occasional collaborator at the family farm.

Education and training

From 2014 to 2018:

PhD in Physics at:
University of Padova, Physics and Astronomy Department "G. Galilei", via Marzolo 8, 35131 Padova.
Semiconductor Physics research group.
Thesis title: Development and analysis of n-type doping processes for high purity germanium.

March 2014 - May 2014:

Attendance of an English language course level C1, at :
University of Ferrara, via Savonarola 9, 44121 Ferrara.

From 2011 to 2014:

Master's Degree in Physics, with teaching in English, at:
University of Ferrara, via Savonarola 9, 44121 Ferrara.
Final mark: 110/110 cum laude.
Semiconductor Physics research group.
Thesis title: Design and fabrication of a mesoporous silicon gas sensor.

From 2008 to 2012:

Bachelor's Degree in Physics and Astrophysics, at:

University of Ferrara, via Savonarola 9, 44121 Ferrara.
Final mark: 110/110 .
Semiconductor Physics research group (photovoltaic division).

	Thesis title: Complementary tracking device for imaging radiometric instruments.
July 2008:	**Secondary School Diploma (scientific studies), at:** Liceo Scientifico "A. Roiti", Viale Leopardi 64, 44121 Ferrara. Final mark: 100/100.
September 2007:	**Scholarship for a week-long visit to CERN in Geneva,** won at the end of a course for secondary schools called 'The Challenges of Modern Physics", attended at University of Ferrara.

Scientific publications

- R. Nipoti, A. Parisini, V. Boldrini, S. Vantaggio, M. Gorni, M. Canino, G. Pizzochero, M. Camarda, J. Woerle, U. Grossner, "Ion Implanted Phosphorous for 4H-SiC VDMOSFETs Source Regions: Effect of the Post Implantation Annealing Time", accepted for publication in: International Conference on Silicon Carbide and Related Materials 2019.
- R. Nipoti, A. Parisini, V. Boldrini, S. Vantaggio, M. Canino, M. Sanmartin, G. Alfieri, "3×10^{18} – 1×10^{19} cm^{-3} Al^{+} ion implanted 4H-SiC: annealing time effect", accepted for publication in: International Conference on Silicon Carbide and Related Materials 2019.
- D. De Salvador, F. Sgarbossa, G. Maggioni, E. Napolitani, C. Carraro, S.M. Carturan, W. Raniero, S. Bertoldo, R. Milazzo, V. Boldrini, G.A. Rizzi, D.R. Napoli, A. Carnera, "Advanced Diffusion Strategies for Junction Formation in Germanium", Multidisciplinary Digital Publishing Institute Proceedings 26 1 (2019).
- V. Boldrini "Development and analysis of n-type doping processes for high purity germanium", PhD thesis, Padua@research (2018).
- V. Boldrini, G. Maggioni, S.M. Carturan, W. Raniero, F. Sgarbossa, R. Milazzo, D.R. Napoli, R. Camattari, E. Napolitani, D. De Salvador "Characterization and modeling of thermally-induced doping contaminants in high-purity Germanium", Journal of Physics D: Applied Physics 52 (2018).
- V. Boldrini, S.M. Carturan, G. Maggioni, E. Napolitani, D.R. Napoli, R. Camattari, D. De Salvador "Optimal process parameters for phosphorus spin-on-doping of germanium", Applied Surface Science 392 (2017) 1173.
- G. Maggioni, S.M. Carturan, W. Raniero, S. Riccetto, F. Sgarbossa, V. Boldrini, R. Milazzo, D. R. Napoli, D. Scarpa, A. Andrighetto, E. Napolitani, D. De Salvador, "Pulsed laser diffusion of thin hole-barrier contacts in high purity germanium for gamma radiation detectors" European Physical Journal A 54 (2018) 34.
- G. Maggioni, F. Sgarbossa, E. Napolitani, W. Raniero, V. Boldrini, S.M. Carturan, D.R. Napoli, D. De Salvador, "Diffusion doping of germanium by sputtered antimony sources", Materials Science in Semiconductor Processing 75 (2018) 118-123.
- D.R. Napoli, G. Maggioni, S. Carturan, J. Eberth, V. Boldrini, D. De Salvador, E. Napolitani, P. Cocconi, G. Della Mea, M. Gelain, R. Gunnella, M.G. Grimaldi, M. Loriggiola, G. Mariotto, N. Pinto, W. Raniero, S.J. Rezvani, S. Riccetto, D. Rosso, F. Sgarbossa, S. Tati "New developments in HPGe detectors for high resolution detection", Acta Physica Polonica B 48 (2017).
- V. Boldrini, S.M. Carturan, L. Gastaldello, G. Maggioni, D. De Salvador, E. Napolitani, D.R. Napoli "Electrical activation measurements on Ge doped by spin-on diffusion", INFN-LNL Annual Report (2015).

International conferences and schools

September 2017:	Oral talk entitled "Spin-On doping in germanium" at the European Material Research Society (E-MRS) Fall Meeting, held in Warsaw.
September 2017:	Oral talk entitled "Characterization of thermally induced doping defects in High-Purity Germanium" at the 2nd Position Sensitive Germanium Detectors (PSeGe) technology and application Workshop, held in Milan.

October 2016:	Oral talk entitled "New developments in n-type junction for Ge detectors" at the 1st Position Sensitive Germanium Detectors (PSeGe) technology and application Workshop, held in Orsay-Paris.
September 2016:	Oral talk entitled "Spin-on-doping in germanium" at the 102nd Italian Physics Society Congress, held in Padua.
February 2016:	Attendance to the Johannes Kepler University 19th International Winterschool "New Developments in Solid State Physics", Mauterndorf (Austria).

Personal skills

Mother tongue:	**Italian**
Other language:	**English:** comprehension C1, oral production B2, written production B2. (Levels: A1/A2 basic - B1/B2 intermediate - C1/C2 advanced)
Linguistic certifications:	English language certification: Cambridge English Preliminary (PET) level B1, with grade "Pass with merit".
Computer skills:	- Optimum command of Microsoft Office tools (Word, Excel, PowerPoint) and of OriginLab data analysis software. - Basic knowledge of the programming language C. - Simulation experience on a physical level with the following software: Zemax, optical design software, and COMSOL Multiphysics (MEMS module) software for finite element simulations of physical systems. - Basic knowledge of SRIM calculation software, for the simulation of ion-implanted profiles.
Technical skills:	- Working experience about low and high temperature Hall-effect electrical measurements (with 4 point-probe systems), for the characterization of germanium and SiC junctions. - Study of dopant activation in semiconductor lattices and interactions with point defects. - Study of thermally activated diffusion phenomena into Ge lattices. - Working experience inside cleanroom for fabrication processes on germanium wafers: wafer cleaning, solgel thin film deposition via spin-coating for doping purposes, thermal curing inside glovebox, post-treatment wet etching, surface passivation treatments. - Dopant diffusion treatments aimed at the fabrication of germanium p-n junctions: use of quartz tube furnace and vacuum systems for fast thermal annealing in gaseous atmosphere. Analysis of thermal budgets for activation energy determination. - Basic experience on laser thermal annealing (LTA) doping treatments. - Basic use of the following surface imaging characterization techniques: optical microscopy, atomic force microscopy (AFM), scanning electron microscopy (SEM). - Basic use of thermocompressive and ultrasonic wire bonding technique.
Professional and organizational skills:	I'm able to organize my work independently, by evaluating goals and priorities, but I appreciate teamwork based on collaboration and heterogeneity of knowledge.

	I can identify and face technical problems, looking for the causes and proposing strategies for their resolution.
Professional goals:	Work in the R&D department of a company or research institute at the forefront of technology.
Personal interests:	I'm interested in bio-compatible electronics, technology for environment, organic agriculture. Nature, mountains and sports lover.

Additional information

Driving licence:	B (car).
Personal data:	I authorize the processing of my personal data in compliance to the Italian Legislative Decree n° 196/2003 and the GDPR (EU Regulation 2016/679).

Ferrara, 16/06/2020