Dr. Gabriele Penazzi

Personal information

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Experience

2010–Present **Research Scientist**, *Bremen Center for Computational Material Science, Physics Department, University of Bremen*, Deutschland.

2009–2010 **Research Assistant**, *Department of Electronic Engineering, University of Rome Tor Vergata*, Italy.

2006–Present **Founder member**, *Tiberlab S.r.l. - Spinoff of University of Rome "Tor Vergata"*, Italy.

Education

2006–2010 **PhD in Learning and Sensing Systems Engineering**, *Department of Electronic Engineering, University of Rome Tor Vergata*.
Thesis Title: *Development of an atomistic/continuous simulation tool for nanoelectronic devices*

2003–2006 **MSc in Electronic Engineering**, *Department of Electronic Engineering, University of Rome Tor Vergata*, *110/110 cum laude*.
Thesis title: *Development of a quantum transport simulator*

2000–2003 **Bachelor in Electronic Engineering**, *Department of Electronic Engineering, University of Rome Tor Vergata*, *110/110 cum laude*.
Thesis title: *Experimental analysis of optical properties of Gallium Nitride*

Research interests

- Computational atomistic and multiscale charge transport modelling
- Nanostructured electronic materials and devices
- Charge transport in molecular systems and organic composites
- Non Equilibrium Green's Function base methods
- Density Functional Tight Binding theory and applications

Teaching

2014-2015 Lecturer in the class "Electronic Transport at Nanoscale", M.Sc. in Physics, University of Bremen

2013-Present Supervision of Bachelor students in Physics

2012-Present Lecturer in DFTB+ international tutorials and hands-on

2008-2010 Supervision of M.Sc. and Bachelor students in Electronic Engineering

2008-2010 Teaching assistant in the classes "Optoelectronic" and "Nanoelectronics", M.Sc. in Electronic Engineering, University of Rome "Tor Vergata"

Relevant professional activities

Developer for DFTB+ software (www.dftb-plus.org)

Developer for TiberCAD software (www.tibercad.org)

Co-author of awarded German Research Foundation (DFG) grant proposals

Co-organizer of International CECAM workshops

5 selected publications

2016 Auf der Maur, M., A. Pecchia, G. Penazzi, W. Rodrigues, and A. Di Carlo. "Efficiency Drop in Green InGaN / GaN Light Emitting Diodes: The Role of Random Alloy Fluctuations". In: *Physical Review Letters* 116.2, p. 027401.

2015 Markov, S., G. Penazzi, Y. Kwok, A. Pecchia, B. Aradi, T. Frauenheim, and G. Chen. "Permittivity of oxidized ultra-thin silicon films from atomistic simulations". In: *IEEE Electron Device Letters* 36, pp. 1076–1078.

2013 Deák, P., B. Aradi, A. Gagliardi, H. A. Huy, G. Penazzi, B. Yan, T. Wehling, and T. Frauenheim. "Possibility of a Field Effect Transistor Based on Dirac Particles in Semiconducting Anatase-TiO2 Nanowires". In: *Nano Letters* 13.3, pp. 1073–1079.

Penazzi, G., J. M. Carlsson, C. Diedrich, G. Olf, A. Pecchia, and T. Frauenheim. "Atomistic modeling of charge transport across a carbon nanotube-polyethylene junction." In: *Journal of Physical Chemistry C* 117, pp. 8020–8027.

2011 Auf der Maur, M., G. Penazzi, G. Romano, F. Sacconi, A. Pecchia, and A. Di Carlo. "The multiscale paradigm in electronic device simulation". In: *Electron Devices, IEEE Transactions on* 99, pp. 1–8.

2008 Pecchia, A., G. Penazzi, L. Salvucci, and A. Di Carlo. "Non-equilibrium Green's functions in density functional tight-binding: method and applications". In: *New Journal of Physics* 10, p. 065022.