



Cicero Giancarlo

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PERSONAL INFORMATION

Name Cicero Giancarlo
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Nationality Italian
Date of birth 03/08/1973

EDUCATION

PhD in Physics, April 7th 2003 at “Scuola di Dottorato” of the Politecnico of Torino. Thesis title: *Ab initio simulations on β -SiC growth on Si(001): from atomic adsorption to the buried interface*. Supervisors: F. Pirri and A. Cattellani.

Laurea in Chemistry, December 4th 1997 at University of Torino. Final score: 110/110 *cum laude et mentione*. Thesis title: “*Studio teorico e sperimentale di solidi molecolari semplici*.” Supervisors: D. Viterbo and R. Orlando

Maturità scientifica, July 1992 at “Liceo Scientifico E. Majorana” of Torino. Final score: 58/60.

WORK EXPERIENCE

01/02/2023 - present
Full Professor in Physics of Matter (FIS/03) at the Department of Applied Science and Technology of the Politecnico of Torino.
16/06/2016 – 31/01/2023
Associate professor in Physics of Matter (FIS/03) at the Department of Applied Science and Technology of the Politecnico of Torino.
16/10/2008 – 15/06/2016
Assistant professor (“Ricercatore”) in Physics of Matter (FIS/03) at the Department of Applied Science and Technology of the Politecnico of Torino.

Research Experience:

November 2005 – Present.
Since November 2005 G. Cicero has been working at the Politecnico of Torino in the “Material and Processes for micro and nano-technologies” group first as a post-doc (Lagrange Fellow and LATERMAR collaborator) than as permanent staff member. He currently leads the activity of the group devoted to the ab initio modeling of matter. The theoretical activity regards the atomistic simulations of complex systems like solid/liquid interfaces, organic/inorganic interfaces and nanostructures with applications in sensing and energy harvesting systems. During this period G. Cicero has been involved in several funded research projects and he has supervised the activity of several undergraduate students, PhD students and post-docs. Further during these years G. Cicero has held many classes for Bachelor, Master and PhD students.

April 2004 – September 2005
G. Cicero was Post-doc fellow in the “Quantum simulation group” at the “Lawrence Livermore National Laboratory” (LLNL, California) under the supervision of prof. Giulia Galli. In this period he studied the properties of water in confined media by



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means of ab initio molecular dynamics. He was also involved in a project regarding the study of the interaction of functionalized Atomic Force Microscopy (AFM) tips with sidewall of carbon Nanotubes in collaboration with an experimental group at LLNL.

May 2003 - March 2004

G. Cicero had a post-doc research fellowship (paid by the Istituto Elettrotecnico Nazionale - IEN) at the Physics Department of Politecnico of Torino and he studied by means of ab initio molecular dynamics simulations the interaction of water molecules with Silicon Carbide surfaces, a biocompatible material that has potential applications in biomedical devices.

November 2000 - April 2003

G. Cicero had a fellowship granted by the “Demichelis Foundation” to work on “Semiconductor Physics” at the Physics Department of Politecnico of Torino. During this period G. Cicero studied the first stages of growth of Silicon Carbide on Silicon (001) under the supervision of F. Pirri and A. Catellani (CNR-IMEM, Parma). This activity became, then, part of his PhD thesis.

January 1999 -October 2000

INFM fellowship on a project regarding the “Epitaxial growth of Silicon Carbide” at the Physics Department of Politecnico of Torino. During this period G. Cicero was involved in the characterization of Silicon Carbide and Silicon thin films obtained by means of the ECR-PECVD growth technique. The main technique of investigation was X-ray diffractometry.

September 1998 - December 1998

Stage at “Centro di Ricerche Enichem-Istituto Guido Donegani” (Novara). G. Cicero was involved in the project “*Theoretical study of metallic redox centers*”, and he studied an enzymatic reaction mechanism which leads to the synthesis of cefalosporine. The active site of the protein and its catalytical activity were studied with ab initio methods (Density Functional Theory).

February - July 1998.

G. Cicero, after his undergraduate thesis, was granted with a “Research training” fellowship at the IFM Chemistry Department, University of Torino. The title of the project was: “Crystal 98 beta test”. G. Cicero was involved in the beta test of the Crystal 98 code, software that performs ab initio calculations on periodic structures within the DFT and Hatree-Fock theory. He also developed a data-base of localized basis set for the majority of the periodic table elements.

Projects managing and involvement:

G. Cicero is PI of a just funded Horizon Europe (HORIZON) Marie Skłodowska-Curie Actions Doctoral Networks (MSCA-DN). Project Title: “Electrochemical conversion of CO₂ into added value products via highly selective bimetallic MATerials and innovative process dESig (ECOMATES)” (2023-2026). Partners: Politecnico di Torino (coordinator), Italian institute of Technology, University of Montpellier (France), Trinity College of Dublin (Ireland), European Synchrotron Radiation Facility (France), VITO (Belgium), Advent Energy (Greece), Apria System (Spain).

G. Cicero has been PI of a research project funded by the call “La Ricerca dei Talenti” promoted by the Politecnico of Torino and funded by the “Fondazione CRT”. Project title: “Computational Design of Nanoporous Materials for Water Desalination Membranes (DESAL)” (2016-2017).

G. Cicero has been PI of a “Joint Project for the Internationalization of Research” promoted by the Politecnico of Torino and funded by the “Compagnia di San Paolo”. This project allowed the exchange of 8 people (PhD students, post-docs and



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Professors) between Politecnico of Torino and MIT. Project title: “2D materials for Solar Energy Conversion” (2015-2016).

G. Cicero has been the coordinator of the Italian node of the European Project “NANOWIRING - Semiconductor nanowires: from fundamental physics to device applications” proposed within the Marie Curie ITN scheme (2010-2014).

G. Cicero has been the Italian PI of a MITOR project of collaboration between Politecnico of Torino and MIT (2011-2012): “Computationally Optimized Photovoltaic Based on Nanomaterials: Elucidating Fundamental Mechanism and Predicting New Designs”.

G. Cicero is the Italian PI of a MITOR project of collaboration between Politecnico of Torino and MIT (2012-2013): “Theoretical and experimental study of ZnO nanostructure based energy harvesting systems”.

G. Cicero is the Italian PI of a MITOR project of collaboration between Politecnico of Torino and MIT (2013-2014): “Computationally optimized “all carbon” based blends for photovoltaic applications”

G. Cicero is the Italian PI of a MITOR project of collaboration between Politecnico of Torino and MIT (2014-2015): “Supported gold nanoparticles: a fundamental study on the substrate role and implications in gas sensing and nanocatalysis applications”

G. Cicero has been the Italian PI of a British-Italian Partnership Programme (2008-2009) of collaboration with the Imperial College (London) Title: “Comparison of ZnO and TiO₂ based Dye Sensitized Solar Cells: an ab initio study”.

G. Cicero has been PI of a European project funded by the NanoSci-ERA (Nanoscience in the European Research Area) Consortium. The scope of the project (2007-2009) was to devise new nanoscale architectures (coaxial-nanowires cNW) able to mimic the processes by which the photosynthetic organism harvest sunlight and convert its energy to more useful forms.

G. Cicero has been co-PI of an NSF project for an international collaboration with the Centre of Integrated nanomechanical Systems (COINS) at the University of Berkeley. Project title: “Engineered micro-cantilever surfaces with enhanced sensing capabilities: a combined theoretical/experimental study of fundamental mechanisms“ (started in 2007).

G. Cicero has been responsible of a “User Facility” project at the Molecular Foundry of LBNL (Berkeley, CA). Project Title: “First principles explorations of photovoltaic InN nanostructures”.

G. Cicero got funded a “Short-mobility project” promoted by CNR to facilitate scientist exchange between Italy and foreign countries. In particular this project funded G. Cicero’s visit at the Molecular Foundry - LBNL (Berkeley, CA) in March 2008.

G. Cicero has coordinated several Supercomputing projects promoted by the CINECA Supercomputing Center (Bologna) and the NIC Supercomputing Center Jülich (Germany).

National and international collaborations:

G. Cicero has conducted part of his research activity in collaboration with some national and international research groups. In particular he is in contact with:

- Prof. H. Jonsson, University of Iceland – G. Cicero has recently started a collaboration with Prof. Jonsson on the simulations of the kinetics of the CO₂



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reduction reaction at different metal surfaces. One PhD student (C. Salvini) spent three months of her studies at the University of Iceland to be trained in the study of reaction kinetics.

- Prof. G. Galli, University of Chicago – G. Cicero collaborated with G. Galli on the simulation of the properties of confined water and they recently started a new collaboration on the electronic level alignment at water/semiconductor interfaces. One Master of Science student (G. Russo), one PhD (F. Savazzi) and one Post-Doc (A. Aliano) from Politecnico of Torino worked for few months in G. Galli's group within the framework of the established collaborations.

- PhD E. Schwegler, Lawrence Livermore National Lab. (California) – G. Cicero collaborated with E. Schwegler on the simulation of the properties of confined water and ion solvation at the nanoscale. G. Cicero spent one month in 2006 working in E. Schwegler's group as visiting scientist.

- Prof. J. C. Grossmann, MIT (Massachusetts) – G. Cicero has been collaborating with prof. J. C. Grossman since 2007 through several funded projects. The collaboration regards several topics such as new nanostructures for third generation solar cells, simulations of mechanical sensors and innovative membranes for water treatment. Five Master of Science students (G. Lani, T. Musso, U. Tribuzio, A. Anelli and F. Pinna) and two PhD students (F. Risplendi, F. Raffone and F. Savazzi) from Politecnico of Torino worked for few months in J. C. Grossman's group within the framework of this on-going collaboration.

- D. Prendergast, Molecular Foundry at LBNL, Berkeley (California) – G. Cicero carried on a collaboration with D. Prendergast on the simulation of the electronic properties of InN nanostructures for photovoltaic applications. One Post-Doc (A. Terentjevs) from Politecnico of Torino worked for one month with D. Prendergast at the Molecular Foundry within the framework of this collaboration.

- Prof. N. M. Harrison and G. Mallia, Imperial College of London – G. Cicero carried on a collaboration regarding the ab initio simulations of dye sensitized solar cells and the structural and electronic properties of graphene oxide. Thanks to this collaboration one Master of Science student (F. Savazzi) and a PhD student (F. Risplendi) from Politecnico of Torino spent few months working at the Imperial college of London.

- International collaboration with Prof. Kh. A. Abdullin from Al-Farabi Kazakh National University and Prof. L. V. Gritsenko from K.I. Satpayev Kazakh National Research Technical University (2012-2016). G. Cicero has been appointed as foreign PhD supervisor of the student Kedruk Yevgeniya, who is currently working in Prof. L. V. Gritsenko's group.

- G. Cicero as PI of the NANOLICHT project and as responsible of the Italian node of the Nanowiring ITN Network has collaborated with several research groups belonging to European Universities (See list of the partners of these two projects in the section "Scientific responsibility of competitive National and International research projects" reported later in this document).

Collaboration with CNR:

During his PhD Giancarlo Cicero was supervised by A. Catellani, a researcher working at the CNR-IMEM Institute of Parma. The PhD work was done in co-tutoring with prof. C. F. Pirri of Politecnico of Torino. For the completion of his PhD work G. Cicero spent several months working in Parma (CNR-IMEM). Later, both as post-doc and assistant professor, G. Cicero continued the collaboration with CNR-IMEM. The collaboration regarded several aspects of material science, ranging from surface modification to the study of the electronic properties of nanostructures for photovoltaic applications. In 2006, he has been associated as external researcher to CNR-IMEM and he has been involved in several funded projects with this Institute.

G. Cicero was also involved by S. Corni (CNR-Nano, Modena) in a grand challenge DECI project regarding the simulation of protein/surface interaction mediated by water. G. Cicero has been associated to the CNR-NANO (Modena) research center in the years 2015-2016.

Collaboration with the Italian Institute of Technology (IIT):



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Since the founding of the IIT laboratories in Torino, G. Cicero has been collaborating with IIT researchers involved in the “Energy platform”. In particular together with his PhD students, he was involved in the theoretical investigation of some fundamental aspects of the functioning mechanism of Dye Sensitized Solar Cells and of memristor devices that were experimentally realized and characterized by the IIT scientists. The work has been published in international journals (see list of publications). G. Cicero has been affiliated to the Centre IIT@PoliTo (Italian Institute of Technology, Centre for Space Human Robotics) in the period July 2013- October 2014. The current collaboration with the team of the IIT@PoliTo center is focused on the study of innovative electrocatalysts for CO₂ electroreduction.

Period Spent abroad as visiting scientist:

In the framework of the collaborations listed above G. Cicero has spent some months abroad to conduct research with the mentioned research groups:

June-September 2003, G. Cicero was a visiting scholar at the Lawrence Livermore National Laboratory (Livermore, CA) to work on a research project related to the simulation of the interaction between water and Silicon Carbide surfaces in collaboration with Prof. Giulia Galli.

Post-Doc fellow - Research staff member in the group of Giulia Galli in the Physics and Advanced Technologies Directorate, LLNL, Livermore (CA) during the period 04-03-2004 / 31-08-2005.

February-April 2007, G. Cicero was a visiting scholar at COINS (Center of Integrated nanomechanical Systems, Berkeley University). During his stay, G. Cicero worked on the simulations of thiol functionalized gold surfaces in collaboration with Prof. J. C. Grossman and Prof. A. Majumdar.

Visiting scientist at Molecular Foundry of LBNL (Berkeley, CA) in the period 17-03-2008 / 17-04-2008. During his stay he worked with PhD David Prendergast on the simulations on InN nanostructures.

July 2009 and December 2009. G. Cicero worked as visiting scientist at the Imperial College of London within the framework of a funded “British-Italian partnership program” in collaboration with Prof. N. M. Harrison’s group. The research subject concerned the ab initio simulations of DSC solar cells.

February 2013, G. Cicero worked as a visiting scientist for two weeks in J. Grossman’s group at MIT (Cambridge, MA) within the framework of a MITOR project.

January-February 2015, April-May 2015, May 2016 and June 2018 G. Cicero worked as a visiting scientist in J. Grossman’s group (MIT, Cambridge, MA) in the framework of a project of “Internationalization of research” promoted by Politecnico of Torino. The research work regarded the simulations of the properties of functionalized MoS₂ monolayer.

Student activity supervision

Here follows a list of the Master of Science students, Phd students and post-doc supervised by G. Cicero.

Master of Science students:

G. Lani, thesis title: “Nanomechanical energy transfer in carbon nanotubes: fundamental insights from molecular dynamics simulations” (2008), Politecnico of Torino (Master of Science in Physics Engineering).

S. Zanin, thesis title: “Tecnologia dei nano-contatti e caratterizzazione elettronica su nanofili di ZnO e GaN” (2009), Politecnico of Torino (Master of Science in Physics Engineering).



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F. Risplendi, thesis title: "Silicon based Cantilever functionalized with propyl-urea molecules: a theoretical investigation" (2010), Politecnico of Torino (Master of Science in Physics Engineering).

G. Russo, thesis title: "Nucleation and induced crystallization in supercooled liquid water" (2010), Politecnico of Torino (Master of Science in Physics Engineering).

T. Musso, thesis title: "Study of photo-isomers for solar cells" (2011), Politecnico of Torino (Master of Science in Physics Engineering).

L. Song, thesis title: "Ab initio investigation of amorphous oxide semiconductor a-GZO: from atomistic structure to electronic properties" (2011), Politecnico of Torino (Master of Science in Physics Engineering).

I. Berardone, thesis title: "Realizzazione ed ottimizzazione di celle DSSC a base di ossidi nano strutturali e coloranti organici innovativi" (2012), Politecnico of Torino (Master of Science in Physics Engineering).

F. Raffone, thesis title: "Theoretical study of the electronic properties of suspended and supported gold nanoparticles" (2013), Politecnico of Torino (Master of Science in Nanotechnologies for ICTs).

U. Tribuzio, thesis title: "Study and realization of a liquid state solar cell" (2013), Politecnico of Torino (Master of Science in Nanotechnologies for ICTs).

M. Junaid, thesis title: "Study of ZnO/Cu₂O based third generation solar cells" (2013), Politecnico of Torino (Master of Science in Nanotechnologies for ICTs).

M. Cagnoni, thesis title: "Study of the effect of the annealing process on mixed halide perovskite for solar cell applications" (2014), Politecnico of Torino (Master of Science in Nanotechnologies for ICTs).

A. Anelli, thesis title: "Ethanol and water separation using a nanoporous membrane via reverse osmosis" (2015), Politecnico of Torino (Master of Science in Nanotechnologies for ICTs).

F. Pinna, thesis title: "Sputtering Synthesis and Physical-Chemical Characterization of Two-Dimensional MoS₂ thin films" (2015), Politecnico of Torino (Master of Science in Nanotechnologies for ICTs).

S. Ruggiero, thesis title: "Produzione di monostrati di MoS₂ con metodi di esfoliazione chimica e meccanica" (2016), Politecnico of Torino (Master of Science in Materials Science and Engineering).

D. Roccaforte, thesis title: "Studio di strati attivi a tre componenti per dispositivi fotovoltaici organici" (2016), Politecnico of Torino (Master of Science in Materials Science and Engineering).

F. Savazzi, thesis title: "A theoretical study of the structural and electronic properties of graphene oxide" (2016), Politecnico of Torino (Master of Science in Nanotechnologies for ICTs).

G. Tronci, thesis title: "Atomistic modeling of membrane for CH₄/H₂S separation" (2016), Politecnico of Torino (Master of Science in Chemical Engineering).

J. Riso, thesis title: "Characterization of surface treatments for epitaxial silicon wafers for the resistivity measurement by C-V technique" (2017), Politecnico of Torino (Master of Science in Materials Science and Engineering).

R. Telemaco, thesis title: "Zinc-Modified Copper catalyst materials for the electrochemical reduction of Carbon Dioxide to Syngas" (2019), Politecnico of Torino (Master of Science in Materials Science and Engineering).

A. Pellegrino, thesis title: "Graphene-based membranes for water purification processes" (2019), Politecnico of Torino (Master of Science in Materials Science and Engineering).

L. Fabrizio, thesis title: "Doped reduced graphene oxide (rGO) as catalyst for reduction of oxygen and carbon dioxide" (2019), Politecnico of Torino (Master of Science in Materials Science and Engineering).

W. Alabisio, thesis title: "Iopamidol as MRI-CEST contrast agent for improved infection detection on mesoporous TiO₂-functionalised biomedical implants" (2019), Politecnico of Torino (Master of Science in Materials Science and Engineering).

M. Salomone, thesis title: "Simulation of InSe for single photon emission application" (2020), Politecnico of Torino (Master of Science in Nanotechnologies for ICTs).

L. Bastonero, thesis title: "Prediction of the Optoelectronic Properties of 2D



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Heterostructures Via First Principles Simulations” (2020) University of Torino (Master of Science in Physics).

R. Arena, thesis title: “Microplastics removal from discharge water: mitigation actions, overview and research perspectives” (2020), Politecnico of Torino (Master of Science in Materials Science and Engineering).

G. Platania, thesis title: “I processi di degrado e di pulitura della superficie di un reliquiario cinese in argento del XII secolo: il contributo dell'ingegneria dei materiali” (2021), Politecnico of Torino (Master of Science in Materials Science and Engineering).

A. R. Khan, thesis title: “Study on mass transport effects in the electroreduction of CO₂” (2021), Politecnico of Torino (Master of Science in Mechanical Engineering).

M. Nizza, thesis title: “Studio dei processi di degrado di provini di Argento sepolti in terreni simulati” (2022), Politecnico of Torino (Master of Science in Materials Science and Engineering).

A. V. Kumar, thesis title: “Analysis of the Electronic Properties of 2D-material Alloys and of Vertical Heterojunctions”, Politecnico of Torino (Master of Science in Nanotechnologies for ICTs 2022).

M. G. Bianchi, thesis title: “Simulations of the optoelectronic properties of WS₂ monolayer”, Politecnico of Torino (Master of Science in Nanotechnologies for ICTs 2022).

PhD students:

F. Risplendi (PhD in Electronic Devices obtained at Politecnico of Torino in 2014). Thesis title: “Ab initio investigation of Dye sensitized solar cells”.

K. K. Korir (PhD in Electronic Devices obtained at Politecnico of Torino in 2014). Thesis title: “ZnO Nanowires for energy harvesting applications: an ab initio approach”.

F. Raffone (PhD in Physics obtained at Politecnico of Torino in 2017). Thesis title: “Physical processes and materials in memristive devices: a theoretical study”

F. Savazzi (PhD in Physics obtained at Politecnico of Torino in 2020). Thesis title: “Computational study of reduced Graphene Oxide properties for membrane applications”

C. Salvini, (PhD in Materials Science at Politecnico of Torino in 2023). Thesis title: “Unraveling CO₂ reduction mechanism on selective electrocatalysts: computational Insights for efficient valorization”

M. Salomone, currently at his second year of a PhD in Physics at Politecnico of Torino.

M. Bianchi, currently at his first year of a PhD in Physics at Politecnico of Torino.

G. Cicero has also co-supervised the research activity of three international PhD students. Two of them performed part of their research activity at the DISAT department of the Politecnico di Torino in the research group coordinated by G. Cicero. These three students are:

S. Haffad, PhD student at the University of Mira-Bejaia, worked with G. Cicero for about one year and a half. His research activity was related to the simulations of ZnO nanowires doped with Nitrogen and this work was published in two international journals: (i) S. Haffad, M. Samah and G. Cicero, “Effect of nitrogen impurities on the physical properties of ZnO nanowires: First-principles study”, *Phys. Rev. B* 85, 165207 (2012), (ii) S. Haffad, G. Cicero and M. Samah, “Structural and electronic properties of ZnO nanowires: a theoretical study”, *Energy Procedia* 10 (2011) 128-137.

S. Haffad defended his PhD thesis (title: “Ab initio study of simple and Co-axial nanowires for solar cells applications) in July 2012 at the University of Mira-Bejaia (Algeria) where G. Cicero was invited as co-supervisor.

L. Podrezova, PhD student of the Kazakh National Technical University (Kazakhstan). In 2011/2012 Ms. Podrezova worked at DISAT for about six months under the supervision of G. Cicero within the framework of an “Erasmus Mundus” project. Her research activity concerned with the growth and characterization of ZnO based



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nanostructures with applications in DSC solar cells. This work was published in two international journals: (i) Kh. A. Abdullin, N. B. Bakranov, D. V. Ismailov, J. K. Kalkozova, S. E. Kumekov, L. V. Podrezova and G. Cicero, "Composite materials based on Nanostructured Zinc Oxide" *Semiconductors*, 48, 471-475 (2014) (ii) L. V. Podrezova, S. Porro, V. Cauda, M. Fontana and G. Cicero, "Comparison between ZnO nanowires grown by chemical vapor deposition and hydrothermal synthesis" *Appl. Phys. A* 113, 623-632, (2013).

Y. Kedruk, a PhD at the Kazakh National Technical University (Kazakhstan) in 2022. Her work regarded the application of ZnO nanoparticles as photo and electrocatalysts.

Post-docs:

A. Aliano post-doc at the DISAT Department hired through the funding of the European project Nanowiring, coordinated by G. Cicero. His activity concerned with the study of Indium Nitride Nanowires and the role of its native oxide in influencing the electronic properties of these Nanowires by means of ab initio simulations.

A. Terentjevs post-doc at the DISAT Department hired through the funding of the European project Nanowiring, coordinated by G. Cicero. His activity concerned with the study of Indium Nitride Nanowires and the simulation of functionalization of these wires with organic molecules. Moreover A. Terentjevs addressed the importance of Nitrogen vacancies in affecting the electronic properties of these Nanowires.

A. Aliano's and A. Terentjevs' research work was conducted in collaboration with the "experimental" European partners of the Nanolicht Project (University of Valencia, University of Gottingen and University di Jerusalem). These partners were involved in the growth and characterization on Indium Nitrides Nanowires studied by G. Cicero's group with a theoretical approach.

M. Laurenti, post-doc (2016-2017) at the DISAT Department of Politecnico of Torino, was hired through the funding of the DESAL project, coordinated by G. Cicero. His activity concerned with the realization of reverse osmosis desalination porous membranes obtained by thermally reducing graphene oxide.

F. Rispendi, (2016-2018) post-doc at the DISAT Department of Politecnico of Torino, was hired through the funding of the DESAL project, coordinated by G. Cicero. Her activity concerned with the theoretical study of reverse osmosis desalination membranes based on reduced graphene oxide.

F. Risplendi is now a RTDA working in C. Cicero's group.

F. Raffone, (2016-2019) post-doc at the DISAT Department of Politecnico of Torino, was hired through the funding of the DESAL project, coordinated by G. Cicero. His activity concerned with the theoretical study of pore formation in graphene oxide through annealing processes.

F. Raffone is now a RTDA working in C. Cicero's group.

INVITED CONTRIBUTIONS AT CONFERENCES AND SEMINARS

Invited Talk during National, International Conferences and Schools:

MMD (Matter, Materials and Devices) Meeting, Genova, June 22-25th 2005.

Invited talk in the session: "Simulating water at surfaces: from inorganic to biological systems".

Title of the presentation: "Structural properties of water confined between hydrophilic and hydrophobic surfaces, as probed by ab-initio molecular dynamics."

APS March Meeting 2006, Baltimore (MD), March 13-17th 2006.

Invited talk during the Focus session: "Wetting and hard/soft interfaces".



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Title of the presentation: "Ab initio simulations of H₂O interaction with α -SiC surfaces."

Catalysis from First Principles, CECAM, Lion (France), September 11-14th 2006.

Invited talk: "Structural properties of water confined between hydrophilic and hydrophobic surfaces, as probed by ab-initio molecular dynamics".

New Perspectives in Nano-Bio Technologies, Politecnico of Torino, 27th September 2006.

Invited Talk: "Ab initio simulations of surface stress at the alkyl-terminated Si(001) surfaces."

Nanotubi@Politecnico, Politecnico of Torino, 25th May 2007.

Invited talk: "CNT simulations: Applications to sensors and nanofluidics."

IBWAP Conference, Costanza (Romania), 6-8th July 2009.

Invited talk: "Dye sensitized InN nanocolumns: application as light harvesting systems".

Nanowiring Fall School 2013 "Advanced School on Semiconductor Nanowires", Alghero (Italia), 6-12th October 2013.

Invited lecture: "DFT Applications to Nanowires".

International Conference on the Formation of Semiconductor Interfaces" (ICSFI 16), Hannover (Germany), July 2-7th 2017.

Invited talk: "MoS₂ enhanced T-phase stabilization and tunability through alloying and organic functionalization."

Psi-k workshop "2D layered materials for opto-electronics: a theoretical/computational perspective", Rome (Italy), 18-19th December 2017.

Invited talk: "MoS₂ enhanced T-phase stabilization and tunability through alloying and organic functionalization".

Italy-Korea Workshop "Membrane Technology for Climate Change", Sorrento (NA), 24-26 November 2022.

Invited talk: "High rejection stacked single-layer graphene membranes for water treatment".

Invited seminar in international universities and research institutes

May 13th 2015, MIT, Cambridge (MA). Title: "DFT Applications to ZnO Nanowire Sensors".

May 26th 2009, CNR-IMEM, Parma, Italy. Title: "Nanostructured Materials for Photovoltaic Applications".

June 22nd 2009, Thomas Young Centre, Imperial College of London. Title: "Polarization inversion in hexagonal nanowires".

April 2007, UC Berkeley, Berkeley (CA). Title: "Ab initio simulations of surface stress and surface polarization".

March 21st 2006, Princeton University. Title: "Structural properties of water confined between hydrophilic and hydrophobic surfaces, as probed by ab initio molecular dynamics".

December 15th 2005, University of Modena. Title: "Ab initio simulations of water interaction with SiC surfaces".



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January 23rd 2003, CNR-IMEM, Parma, Italy. Title: "Ab initio simulations of SiC growth on Si(001): from atomic adsorption to the buried interface".

May 2003, CNR-IMEM, Parma, Italy. Title: "Water interaction with polar semiconductor surfaces: the case of SiC(001)".

May 28th 2001, University of Parma, Parma, Italy. Title: "Adsorption mechanism at semiconductor surfaces through ab initio simulations".

G. Cicero was involved in the organizing committee of the following events:

Member of the Programme Committee of the Nanoinnovation 2022 Conference and co-organizer of the second edition of the two days' workshop "Innovation for the energy transition" (Rome, 21-22 September 2022).

Member of the Programme Committee of the Nanoinnovation 2021 Conference and co-organizer of the first edition of the two days' workshop "Innovation for the energy transition" (Rome, 22-23 September 2021).

Co-organizer and co-chair of the Symposium "Advanced Materials and Technologies for Sustainability" at the Nanoinnovation 2020 Conference, Rome (15-18 September 2020).

Co-organizer and co-chair of the Symposium "Nanomaterials Enhanced membranes and Processes for water and energy challenges" at the Nanoinnovation 2019 Conference, Rome (11-14 June 2019).

Co-organizer and co-chair of the Symposium "2D materials beyond graphene: from fundamental physics to device applications" at the Nanoinnovation 2018 Conference, Rome (11-14 September 2018).

Member of the Organising committee of the Nanowiring Fall School 2013 "Advanced School on Semiconductor Nanowires", 6-12 October 2013, Alghero, Italia.

Member of the organising committee of the "Advanced school on hybrid nanostructured materials for photovoltaic applications". Valencia (Spain) 9-11 March 2009.

Co-organizer of the Symposium: "Functionalizing nanostructures towards novel paradigms for energetics" ECOSS 26, Parma, August 2009.

Member of the organising committee of the "III Congresso Nazionale sul Carburo di Silicio", Parma, April 2003.

Member of the organising committee of the "II Congresso Nazionale sul Carburo di Silicio", Parma, 18- 19 March 2002.

Member of the organising team of the "III Silicon Workshop", Genova, 6-8th February 2002.

Associated to the CNR-IMEM (Parma) research center in the years 2006-2008, 2011/2013 and 2014-2016.

Associated to the CNR-NANO (Modena) research center in the years 2015-2018.

Affiliated to the Centre IIT@PoliTo (Italian Institute of Technology, Centre for Space Human Robotics) in the period July 2013- October 2014.

CONFERENCES AND SCHOOLS ORGANIZATION

MEMBERSHIP AND ASSOCIATION TO RESEARCH ORGANIZATIONS



Cicero Giancarlo

Curriculum Vitae

Associated to the Italian National Institute for the Physics of Matter (INFN, section E - Semiconductors and Insulators) (1999-2003).

Associated to the Italian National Interuniversity Consortium for the Physical Sciences of Matter (CNISM, area 4: Solids and Nanotechnologies) (2007)

Member of the Scientific committee of the Interdepartmental Center for Crystallography – CRISDI (Torino) since 2014.

PERSONAL SKILLS

Mother tongue

Italian

Other languages

English:
Reading skills: excellent
Writing skills: excellent
Oral skills: excellent

Spanish:
Reading skills: good
Writing skills: good
Oral skills: good

Technical skills

Programming languages: Fortran, HTML.
Known operative systems: Windows, Unix.
Software: Office Package, Quantum-Espresso Package.
Instruments: X-ray diffractometer.

Torino, 20/05/2023

Giancarlo Cicero