

# CV VITTORIO ROMANO

## General information

- born in Catania (Italy) on April 13, 1966;
- married with a daughter and a son;
- hobbies: music and chess;

## Addresses

- Dipartimento di Ingegneria Industriale, Università di Catania, viale A. Doria 6, 95125 Catania, Italy
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## Educational background

- PhD. thesis: Mathematical aspects of relativistic fluid dynamics and applications, advisor prof. A. M. Anile (1994)
- PhD in Mathematics, University of Catania, Italy, 1989-1993
- Laurea degree in Mathematics, Magna cum Laude, University of Catania, Italy, 1989

## Positions

- 2011: Full Professor of Mathematical Physics, University of Catania, Italy
- 2001: Associate Professor of Mathematical Physics, University of Catania, Italy
- 1996: Research Professor, Politecnico di Bari, Italy

## Professional and academic experiences

- Head of the Interdepartmental Center of Mathematics for Technology *A. M. Anile*, University of Catania.
- CNR Research Fellowship on Mathematical questions on transport problems in fluids, 1995
- grant with SGS Thomson microelectronics for the development of mathematical models for charge transport in semiconductors, 1995
- research fellowship at the Istituto di Alta Matematica (INDAM) "F. Severi", Roma, 1993-1994
- grant with SELANIA Spazio for the development of numerical code for the transmission of electromagnetic waves in wave guides, 1989

## Research topics

- mathematical modeling and simulation of charge transport in semiconductors
  - non-equilibrium thermodynamics
  - nonlinear waves and stability of shock waves
  - numerical methods for hyperbolic systems
  - group analysis of PDE
  - radiation hydrodynamics
  - relativistic fluid dynamics and cosmology
- current H-index: 17 (according to SCOPUS)

## Teaching subjects

- classical mechanics
- mathematical and statistical methods for engineering
- mathematical physics
- calculus
- numerical methods

## Courses held in International Schools

- *Charge transport in low dimensional structure*, GNFM Summer School of Mathematical Physics, Ravello, September 2016.
- *Mathematical Models for Semiconductor Industry*, MODCLIM Consortium within the Erasmus+ EU Programme, Las Palmas de Gran Canaria, Spain, March 2015
- *Modeling and simulation of semiconductor electron devices*, 2011 Intensive Programme in MathNanoSci - *When Mathematics Meets Nanosciences*, EC Erasmus Programme, Università dell'Aquila, Italy, June 2011

## Visiting at

- Autonomous University of Barcelona, Spain
- SISSA, Italy
- Kaiserslautern University of Technology, Germany
- Bergische University of Wuppertal, Germany

## Research management

- principal investigator project *Charge Transport in Graphene and Low dimensional Structures: modeling and simulation*, University of Catania 2015
- scientist in charge european project ENIAC JU "ERG" within the call ENIAC 2010 on *ENERGY FOR A GREEN SOCIETY: FROM SUSTAINABLE HARVESTING TO SMART DISTRIBUTION. EQUIPMENTS, MATERIALS, DESIGN SOLUTIONS AND THEIR APPLICATIONS*
- scientist in charge project PON "Ambition Power" "*Sviluppo di tecnologie, prodotti e processi per le energie rinnovabili e/o per l'utilizzo razionale dell'energia e/o per l'efficienza energetica*"
- scientist in charge for the University of Catania of the FP6 EU project "COMSON" grant n. MRTN-CT-2005-019417 (web site [www.comson.org](http://www.comson.org)), academic nodes Universities of Catania, Calabria, Bucarest, Eindhoven and Wuppertal, industrial nodes ST-Microelectronics site of Catania, Infineon site of Monaco and Philips site of Eindhoven.
- scientist in charge project "Vigoni" Catania-Kaiserslautern (2006/2007)

## Organization of conferences and schools

- member of the scientific committee of the INDAM conference "Multiscale analysis for quantum system and applications", Roma, October 2007.
- member of the scientific committee of SCEE (Scientific Computing in Electrical Engineering) 2008 (Helsinki), 2010 (Toulouse), 2012 (Zurich), 2014 (Wuppertal).
- member of the organizing committee ECMI (European Consortium for Mathematics for Industry) 2014, Taormina, Italy
- member of the organizing committee SIMAI (Società Italiana di Matematica Applicata e Industriale) 2014, Taormina, Italy
- Co-chair of the International Conference on Transport Theory, Taormina (Italy), September 2015

- director of the following international schools:

- 1) MOMINE08 (Modeling and optimization in micro and nano-electronics),  
baia Samuele (Ragusa) Italy , June 2008,  
(<http://www.dmi.unict.it/~momine08/>)
- 2) MOMINE09, Cetraro, Italy, September 2009 (<http://momine2009.unical.it>).

### **Supervisor of PhD students**

1. Marco Coco, *Monte Carlo study of charge and phonon transport in graphene*, Dottorato di Ricerca in Matematica e Informatica, sedi consorziate Università di Catania, Messina, Palermo, XXIX ciclo.
2. Vito Dario Camiola, *Subbands model for semiconductors based on the Maximum Entropy Principle*, Dottorato in Matematica Applicata XXV ciclo, Università degli Studi di Catania.
3. Angelo Greco, *Optimization of homogeneous emitter and thin-film solar cells*, Dottorato in Matematica Applicata XXV ciclo, Università degli Studi di Catania.
4. Nella Rotundo *Coupling and thermal effects in semiconductor devices*, Dottorato in Matematica Applicata all'ingegneria XXIII ciclo, Università degli studi di Catania.
5. Salvatore La Rosa *Hydrodynamical Models for Si Semiconductors Based on the Maximum Entropy Principle*, Dottorato di Ricerca in Matematica per l'Ingegneria, Università degli studi di Catania, XX ciclo.

### **Invited speakers in the following conferences**

- SEMODAY 2016, Florence, November 2016,
- THERMOCONF 2016, Messina, April 2016;
- WASCOM 2015, Cetraro, June 2015;
- JETC (Joint European Conference on Thermodynamics) 2013, Brescia, July 2013,
- TTMT, Berlin December 2011;
- IPERME 2011, Messina February 2011;
- International workshop "Quantum systems and semiconductor devices:  
Analysis, Simulations, Applications, April 2009, Beijing, China
- SEMIC2007, Wuppertal, February 2007
- NANOQ06, Politecnico di Milano, November 2006
- SEMIC2006, TU Vienna, February 2006
- EMIC2005, Politecnico di Milano, February 2005

### **Editor activity**

- associate editor of Journal of Theoretical and Computational Transport (2015)
- associate editor of Frontiers in Applied Mathematics and Statistics (2015)