Aalto University
School of Electrical
Engineering

Research ID: **C-4971-2012**

h-index: **17** (*i10*-index:24)

LANGUAGES

Italian ●●●●●
English ●●●●●
French ●●●●●○
Finnish ●○○○○○

COMPUTER SKILLS

MS Office & File

Graphics

Instrument Control

Data Analysis & Visualization

PERSONAL INTEREST

CATERINA SOLDANO, PhD

Assistant Professor of Micro- and Nanosciences

Department of Electronics and Nanoengineering, Aalto University, Espoo (Finland)

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RESEARCH EXPERIENCE

05.2019-now **Assistant Professor of Micro and Nanosciences** @Department of Electronics & Nanoengineering, Aalto University (Espoo, FIN)

Coordinating research activity in the field of ***organic electronics*** and ***organic light emitting devices***

2015-2017 **Senior Scientist (permanent)** @ETC srl (Bologna, IT)

2012-2015 **Senior Scientist (fixed-term)** @ETC srl (Bologna, IT)

2010-2012 **Post-Doctoral Research Associate** @U. of Brescia (Brescia, IT)

2010 **Researcher (fixed-term)** @CNRS-CEMES (Toulouse, FR)

2008-2009 **Post-Doctoral Research Associate** @CNRS-CEMES (Toulouse, FR)

2005-2007 **PhD Candidate** @Rensselaer Polytechnic Inst. (Troy, NY-USA)

2003-2004 **MSc Candidate** @Rensselaer Polytechnic Inst. (Troy, NY-USA)

EDUCATION

2007 **PhD** in **Physics**, Rensselaer Polytechnic Institute (USA)

2004 **MSc** in **Physics**, Rensselaer Polytechnic Institute (USA)

2002 **BSc** (MSc equivalent) in **Physics**, University of Bari (IT)

TEACHING & MENTORING EXPERIENCE

2019- **Supervision** of doctoral student

2006-2012 **Supervisor** for 6 student research projects (PhD, MSc, BSc)

2010-2012 **Lecturer** in **Physics (EM & Optics)** @University of Brescia (IT)

2003-2004 **Teaching Assistant** in **Physics** @Rensselaer Polytechnic Institute (USA)

FULL LIST OF PUBLICATIONS

(*equally contributing)

- F. Rossella*, V. Bellani, M. Tommasini, U. Gianazza, E. Comini, **C. Soldano*** *3D Multi-Branched SnO_2 Semiconductor Nanostructures as Optical Waveguides* Materials **12**, 3148 (2019)
- **C. Soldano**, R. D'Alpaos, G. Generali *Highly Efficient Red Organic Light-Emitting Transistors (OLETs) on High-k Dielectrics* ACS Photonics **4**(4), 800 (2017)
- M. Zambianchi, E. Benvenuti, C. Bettini, C. Zanardi, R. Seeber, D. Gentili, M. Cavallini, M. Muccini, V. Biondo, **C. Soldano**, G. Generali, S. Toffanin, M. Melucci *Anthracene-based molecular emitters for non-dopes deep-blue organic light emitting transistors* J. of Materials Chemistry C **4**, 9411 (2016) [cover]
- **C. Soldano**, G. Generali, G. Tallarida, E. Cianci, M. Fanciulli, M. Muccini *Engineering organic/inorganic alumina-based films as dielectrics for red organic light emitting transistors* Thin Solid Films **616**, 408 (2016)
- F. Rossella, **C. Soldano**, L. Bardonali, M. C. Mozzati, L. Ortolani, A. Lascialfari, V. Bellani *Nanostructured magnetic metamaterials based on metal-filled carbon nanotubes* Carbon **96**, 720 (2016)
- **C. Soldano** *Metal-based Hybrid Carbon Nanotubes: a Novel Platform for Multifunctional Applications* (Review) Progress in Materials Science **69**, 183 (2015)
- **C. Soldano**, A. Stefani, G. Turatti, G. Generali, V. Biondo, L. Basiricò, L. Ortolani, V. Morandi, R. Rizzoli, G. P. Veronese, R. Capelli, M. Muccini *ITO-free Organic Light Emitting Transistor Using Graphene Gate Electrode* ACS Photonics **1**(10), 1082 (2014)
- F. Rossella, **C. Soldano**, P. Onorato, V. Bellani *Tuning electronic transport in cobalt-filled carbon nanotubes using magnetic fields* Nanoscale **6**(2), 788 (2014)
- D. Zappa, S. Dalola, G. Faglia, E. Comini, M. Ferroni, **C. Soldano**, V. Ferrari, G. Sberveglieri *Integration of ZnO and CuO nanowires into a thermoelectric module* Beilstein J. of Nanotechnology **5**, 927 (2014)
- **C. Soldano**, S. Talapatra, S. Kar *Carbon Nanotubes and Graphene Nanoribbons as Potential Nanoscale Electrical Interconnects* (Review) Electronics **2**(3), 280 (2013)
- K. T. Dembele, G. S. Selopal, **C. Soldano**, R. Nechache, J. C. Rimada-Herrera, I. Concina, G. Sberveglieri, F. Rosei, A. Vomiero *Hybrid carbon nanotubes-TiO_2 photoanodes for high efficiency dye sensitized solar cells* J. of Physical Chemistry C **117**(28), 14510 (2013)
- Vomiero, I. Concina, E. Comini, **C. Soldano**, M. Ferroni, G. Faglia, G. Sberveglieri *One-dimensional nanostructured oxides for thermoelectric applications and excitonic solar cells* (Review) Nano Energy **1**(3), 372(2012) [cover]
- F. Rossella, **C. Soldano**, V. Bellani, M. Tommasini *Metal-filled Carbon Nanotubes as a Novel Class of Photothermal Nanomaterials* Advanced Materials **24**(18), 2453 (2012)
- **C. Soldano**, E. Comini, C. Baratto, M. Ferroni, G. Faglia, G. Sberveglieri *Metal Oxide Mono-Dimensional Nanostructures for Gas Sensing and Light Emission* (Review) J. of the American Ceramic Society **95**(3), 831 (2012) [cover]
- **C. Soldano**, F. Rossella, V. Bellani, S. Giudicatti, S. Kar *Cobalt Nanocluster-filled Carbon Nanotube Arrays: Engineered Photonic Bandgap and Optical Reflectivity* ACS Nano **4**(11), 6573 (2010)
- **C. Soldano**, A. Mahmood, E. Dujardin *Production, properties and potentials of graphene* (Review) Carbon **48**, 2127 (2010)

- S. Kar*, **C. Soldano*,** L. Chen, S. Talapatra, R. Vajtai, S. K. Nayak, P. M. Ajayan *Lüttinger Liquid to Al'tshuler-Aronov Transition in Disordered, Many-Channel Carbon Nanotubes* ACS Nano **3**(1), 207 (2009)
- J. Grisolia, B. Viallet, C. Amiens, S. Basters, A.-S. Cordan, Y. Leroy, **C. Soldano**, J. Brugger, L. Ressier *99% random telegraph signal-like noise in gold nanoparticle μ-stripes* Nanotechnology **20**, 355303 (2009)
- **C. Soldano**, S. Kar, S. Talapatra, S. K. Nayak, P. M. Ajayan *Detection of nanoscale magnetic activity using a single carbon nanotube* Nano Letters **8**(12), 4498 (2008)
- A. Goyal, S. Kar, A. Kumar, P. M. Ajayan, **C. Soldano** *Temperature dependent high-bias electrical properties of C_{60} microrods* J. of Applied Physics **103**, 064903 (2008)
- A. Kumar, S. Murugesan, V. Pushparaj, J. Xie, **C. Soldano**, G. John, O. Nalamasu, P. M. Ajayan, R. J. Linhardt *Conducting Organic-metallic Composite Sub-Micron Rods Based On Ionic Liquids* Small **3**(3), 429 (2007)
- X. Li, L. Ci, S. Kar, **C. Soldano**, S. J. Kirkpatrick, P. M. Ajayan *Densified aligned carbon nanotube films via vapor phase infiltration of carbon* Carbon **45**(4), 84 (2007)
- K. Kordás, T. Mustonen, G. Toth, H. Jantunen, M. Lajunen, **C. Soldano**, S. Talapatra, S. Kar, R. Vajtai, P. M. Ajayan *Ink-jet Printing of Electrically Conductive Patterns of Carbon Nanotubes* Small **8**(8-9) 1021 (2006)
- V. P. Veedu, A. Cao, X. Li, K. Ma, **C. Soldano**, S. Kar, P. M. Ajayan, M. N. Ghasemi-Nejhad *Multifunctional composites using reinforced laminae with carbon-nanotube forests* Nature Materials **5**(6), 457 (2006)
- Y. J. Jung, S. Kar, S. Talapatra, **C. Soldano**, G. Viswanathan, X. Li, Z. Yao, F. S. Ou, A. Avadhanula, R. Vajtai, S. Curran, O. Nalamasu, P. M. Ajayan *Aligned Carbon Nanotube-Polymer Hybrid Architectures for Diverse Flexible Electronic Applications* Nano Letters **6**(3) 413 (2006)
- S. Kar, A. Vijayaraghavan, **C. Soldano**, S. Talapatra, O. Nalamasu, P. M. Ajayan *Quantitative analysis of hysteresis in carbon nanotube field-effect devices* Applied Physics Letters **89**, 132118 (2006)
- Vijayaraghavan, S. Kar, **C. Soldano**, S. Talapatra, O. Nalamasu, P. M. Ajayan *Charge-injection-induced Dynamic Screening and Origin of Hysteresis in Field-modulated Transport in Single-Wall Carbon Nanotubes* Applied Physics Letters **89**, 162108 (2006)
- Vijayaraghavan, S. Kar, S. Rumyantsev, A. Khanna, **C. Soldano**, N. Pala, R. Vajtai, K. Kanzaki, Y. Kobayashi, O. Nalamasu, M. S. Shur, P. M. Ajayan *Effect of Ambient Pressure on Resistance and Resistance Fluctuations in Single-Wall Carbon Nanotubes Devices* J. of Applied Physics **100**, 024315 (2006)

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- H.-H. Hsieh, W. Chen, G. Generali, **C. Soldano**, R. D'Alpaos, G. Turatti, V. Biondo, M. Muccini, E. Huitema, A. Facchetti *Flexible Active-Matrix OLET Display on a Plastic Substrate* SID Symposium Digest of Technical Papers **47**(1), 739 (2016)
- **C. Soldano**, G. Generali, E. Cianci, G. Tallarida, M. Fanciulli, M. Muccini *Organic Light Emitting Transistors (OLETs) using ALD-grown Al_2O_3 dielectric* SID Symposium Digest of Technical Papers **47**(1), 1737 (2016)
- G. Generali, **C. Soldano**, A. Facchetti, M. Muccini *Innovative Trilayer Organic Light Emitting Transistor (OLET) Structure for Blue Emission* SID Symposium Digest of Technical Papers **47**(1), 1779 (2016)
- S. Dalola, V. Ferrari, G. Faglia, E. Comini, M. Ferroni, **C. Soldano**, D. Zappa, G. Sberveglieri *Investigation of Seebeck Effect in Metal Oxide Nanowires for Powering Autonomous Microsystems* Sensors & Microsystems, Part I, 3-7 (2014)

- S. Dalola, G. Faglia, E. Comini, M. Ferroni, **C. Soldano**, D. Zappa, V. Ferrari, G. Sberveglieri *Investigation of Seebeck Effect in ZnO Nanowires for Micropower Generation in Autonomous Sensor Systems* Sensors - Lecture Notes in Electrical Engineering **162**, 245 (2014)
- S. Dalola, G. Faglia, E. Comini, M. Ferroni, **C. Soldano**, D. Zappa, V. Ferrari, G. Sberveglieri *Planar Thermoelectric Generator based on Metal-Oxide Nanowires for Powering Autonomous Microsystems* Procedia Engineering, Proc. of the Eurosensors XXVI Conf. - Krakow, Poland **47**, 346 (2012)
- M. Ferroni, A. Migliori, V. Morandi, L. Ortolani, G. Sberveglieri, **C. Soldano** *Electron tomography of nanostructures in the SEM* Proc. of the 15th European Microscopy Congress - Manchester, UK (2012)
- Kholmanov*, **C. Soldano***, G. Faglia, G. Sberveglieri *Engineering of bilayer graphene edges by catalyst-assisted growth of curved graphene structures* Carbon Nanostructures: GraphITA 2011, 209 (2012). Editors: L. Ottaviano & V. Morandi
- S. Dalola, G. Faglia, E. Comini, M. Ferroni, **C. Soldano**, D. Zappa, V. Ferrari, G. Sberveglieri *Seebeck effect in ZnO nanowires for micropower generation* Procedia Engineering, Proc. of the Eurosensors XXV Conf. - Athens, GR, **25**, 1481 (2011)
- J. J. Yung, J.-A. Laila, X. Xugang, J. Aceros, S. Müftü, A. Busnaina, S. Kar, **C. Soldano**, P. M. Ajayan *Highly organized carbon nanotube-PDMS hybrid system for multifunctional flexible devices* Proc. of Design Engineering Technical Conferences Computers & Information in Engineering, Las Vegas, NE (2006)
- **C. Soldano**, S. Kar, Y. J. Jung, P. M. Ajayan *Electro-Mechanically Robust, Flexible Carbon Nanotube-PDMS Composite for High Performance Field Emission* Proc. of Multifunctional Nanocomposites 2006, 185 (2006)
- S. Rumyantsev, A. Vijayaraghavan, S. Kar, A. Khanna, **C. Soldano**, N. Pala, R. Vajtai, O. Nalamasu, M. Shur, P. M. Ajayan *Effect of Atmospheric Pressure on Conductance Fluctuations in Single-Wall Carbon Nanotubes* 14th International Symposium "Nanostructures: Physics and Technology" (2006)

OTHERS

- **C. Soldano** *Enhancement of Carbon Nanotubes via Surface Metal Decoration* IRSAPS Bulletin, Indian Research Scholars' Association for Promoting Science **1**(1), (2011)

PATENTS

- **WO2016014973** (2016): *Organic electroluminescent transistor* A. Facchetti, H. Usta, M. Denti, V. Biondo, **C. Soldano**, M. Muccini
- **WO2015200872** (2015): *Photopatternable compositions, patterned high k thin film dielectrics and related devices* Z. Wei, A. Facchetti, Y. Zheng, A. Stefani, M. Riva, **C. Soldano**, M. Muccini