

Prof. Sabrina Conoci



Email: sabrina.conoci@unime.it

Full professor of Physics (FIS03) at University of Messina, Department of Chemical, Biological, Pharmaceutical and Environmental Sciences (from Oct 2019);

Rector Delegate to Technology Transfer at University of Messina

Head of Joint Research Laboratory between STMicroelectronics (Multinational Semiconductor Industry, www.st.com) and University of Messina whose purpose is to carry out research activities, industrial exploitation of results and technology transfer;

Head of the Research Unit at Third Parties (URT) of the Department of Physical Sciences and Technologies of Matter (DSFTM) of the National Research Council (CNR) - Lab SENS- Beyond Nano, at the University of Messina (UNIME)

Member of the Strategic and Advisory Council of the Graphene Flagship (<https://graphene-flagship.eu/project/management/Pages/Strategic-Advisory-Board.aspx>) chaired by the Nobel Prize Prof Konstantin Novoselov (University of Manchester, Manchester, UK).

Member of the Biomedical District Council for High Technology-Sicily
Scientific Advisor for Health Programs of Distretto Tecnologico Micro e Nanosistemi Sicilia (<http://www.distrettomicronano.it/en/>);

Scientific Advisor for STMicroelectronics in the field of advanced research on innovative sensors

Member of the Board of Professors of PhD Course in "Bioengineering Applied to Medical Sciences" at University of Messina

Co-founder (June 2020) of Spin off (Innovative Start Up) Innova Medical Biotechnologies (IBMTech - www.ibmtech.it) which addresses products / services related to: (a) medical devices; (b) artificial intelligence algorithms for medical imaging analysis; (c) Nutraceuticals, Pharmaceuticals and Food Supplements;

Scientific Advisor for Health Programs of Distretto Tecnologico Micro e Nanosistemi Sicilia (<http://www.distrettomicronano.it/en/>),

Scientific Advisor for STMicroelectronics in the field of advanced research on innovative sensors.

Member of AISEM Steering Committee - Italian Association of Sensors and Microsystems (<http://www.aisem.eu/steering-committee/>).

Previous Working Experience

2000-2019 - R&D Manager at STMicroelectronics (ST) covering the several roles (Advanced Devices and Sensors R&D Manager - 2009/2019; BioWare R&D Section Manager - 2005/2009; Molecular Nano Devices Group Leader - 2002/2005; FerroElectric Memory Process engineering -1999/2002) managing and coordinating several *Advanced Research Programs* in many areas involving (i) development of integrated silicon technological platforms, (ii) nanotechnologies; (iii) systems for physical sensors and biodevices. Responsibilities included: (a) management of multidisciplinary teams with background in physics, chemistry, electronic and mechanical engineering, informatics, molecular biology. (b) research management (activities definition, plan, roadmap...); (c) research projects in cooperation with external partners (both academic and private entities) (d) funding: coordination and definition of projects applied for funding according to the technology Roadmap.

Development of the first Biotechnological Platform of ST, *LabonChip BioTechnology*, currently commercialised by VeredusLAB (<https://vereduslabs.com/products/molecular-testing-loc/>). For this activity in July 2009 received the TEAM NOMINEE AWARD from ST.

Member of Steering Committee of ST *Technical Staff*, a staff including the technical excellence of the company.

Several Patent Awards received from ST for the innovative contribution given in the research.

Education And Training

Graduated in Industrial Chemistry *cum summa laude* at the University of Bologna (Italy)

Ph.D. in Materials Engineering in 2001 from University of Lecce (Italy) spending 1 year as PhD student at the Department of Chemistry University of Ottawa (Canada).

High Education on "*Development of monolithic and composite ceramic materials for advanced energy technologies*" managed by Eniricerche (1996-1998), spending 20 months at CNR-IRTEC in Faenza (Ra) 6 months at Eniricerche research laboratories and 2 weeks as Visiting Scientist at the University of Massachusetts (USA).

Teaching And Mentoring

AA 2019-2020/2020-2021/ /2020-2022– Teacher of PHYSICS Course for CTF (Chemistry and Pharmaceutical Technologies) degree course at University of Messina (6 CFU).

Supervisor of Ph.D Thesis entitled "Development Of Innovative Technologies For Dna Extraction And Detection" – Student: Sciuto Emanuele Luigi – Ph.D in Material Science and Nanotechnologies (Cycle XXX)- University of Catania (Italy) – Received the First place in III Edition of the Dario Scapatucci PhD Prize MESAP Polo, Turin 6 June, 2018 - <https://www.mesap.it/il-racconto-di-spm2018-lassieme-annuale-del-polo-mesap/#>

Co-tutor of Industrial PhD Thesis entitled: Development of new materials based on the various allotropic forms of carbon (fullerenes, nanotubes, graphene and also Quantum Dots) for photovoltaics and sensors " Student: Sawalha Shadi – PHD "Engineering of Materials, Structures and Nanotechnologies" (XXXII cycle) - University of Salento

Co-supervisor of 6 Degree Theses in Chemistry and Materials Engineering

Research Project Coordination

Principal Investigator (PI) of several national Italian research projects, participating as WP leader in various European projects, as below detailed:

- **WP Leader of ECCLIPSE** Pathfinder PATHFINDEROPEN-01 - ECLIPSE ECL-based Infectious Pathogen (bio)Sensor - Proposal number: 101046787 - Duration (months): 42– Starting Date: 01.05.2022 - funded for 3.1 Me
- **PI** of Research Unit Project "Graphene Flagship Core Project 3 - GrapheneCore3", Call: H2020-SGA-FET-GRAPHENE-2019 - Starting Date: 01.04.2020 - funded for **£261,001**

- **PI** of the research Project **PON- ADAS +** - Development of advanced technologies and systems for car safety through ADAS platforms - Sustainable Mobility Sector – (No. ARS01_00459) funded for **9.1 M€** by MIUR, Project Coordinator: ST (12 Partners) - Start date: July 2018- end: June 21.
- **PI** of the research Project **PON BONE ++** - Development of Micro and Nanotechnologies for Predictivity, Diagnosis, Therapy and Regenerative Treatments of Pathological Bone and Osteo-Articular Alterations - Health Sector – (N. ARS01_00693) Project Coordinator: Distretto Tecnologico Sicilia Micro e Nano (18 Partners), approved for funding for **9.6 M€** by MIUR (start date: June 2020)
- **PI** of **POR Project** - LiverSmartDrug - *Innovative micro and nanosystems for the effective treatment of Liver Cancer* – (N. Project 087219090463) approved for **3.0 M€** of funding by Sicilian Region (start date: June 2019)
- Research Unit Project **ASTONISH** Title: *Advancing Smart Optical Imaging and Sensing for Health* - Call **H2020-ECSEL-2015-1-RIA-two-stage**, Topic: ECSEL-04-2015 -Proposal number: 692470-2, Project Coordinator: Philips Medical Systems (24 partners) - **2.4 M€ ST funding quote- (2016 – 2019)**
- **PI** Project **DNA on Disk** - *Piattaforma e kit diagnostici per la salute dell'uomo in ambito oncologico, neurologico, infettivologico e delle malattie legate alla povertà*” **ALISEI Cluster** (Rif. Project CTN01_00177_817708) funded for **11.4 M€** by MIUR, Project Coordinator: ST (7 Partners)- **2014-2016**
- **PI PON HIPPOCRATES: Sviluppo di Micro e Nano-Tecnologie e Sistemi Avanzati per la Salute dell'uomo” (Rif. Project PON02_00355_2964193), Project Coordinator: Distretto Tecnologico Sicilia Micro e Nano (14 Partners) funded for **20 M€** by MIUR. **The project ranked first in the peer reviewed ranking****
- **WP Leader “EasyCHip PCR”** French research program **ADNA** (Avances Diagnostiques pour de Nouvelles Approches Therapeutiques) **Code Project 3: Easy Chip** - PCR / target prep sub-project *EasyCHip PCR* , Project Coordinator: **Biomerieux Inc** (2011-2012), funded by French OSEO (**2.5 M€ ST funding quote**)

Conferences

-April 2014 - Principal Organizer of the international symposium "Materials and Biosensor Systems for in vitro diagnostic applications" E-MRS SPRING MEETING 2015 (May 2015, Lille (France)), co-organizers: Dr. S Libertino- CNR- IMM Catania (Italy) -Prof. Anthony P F Turner - University of Linköping-Sweden; Prof. Wolfgang Knoll -AIT Austrian Institute of Technology - (Austria); <http://www.european-mrs.com/meetings/2015-spring/2015-spring-symposia-program>

Research Activities

The research activity embraces multidisciplinary fields in the design and development of multifunctional nanostructured materials and systems, miniaturized devices and sensors, including

(i) *Bioengineering Systems for Biomedical Applications* with focus on the design and implementation of new bioengineering systems for the monitoring of physiological parameters based on high sensitive single photon counter silicon optical detector SiPM (silicon photomultiplier)

(ii) *Multifunctional nanostructured systems*, with creation of nanostructured materials (two- and three-dimensional (2D or 3D) nanoscale systems) able to performing specific functions under the control of optical or electrical stimuli (bottom-up approaches).

(iii) *Innovative devices&methods for biosensing*, focusing on new biochips for molecular biosensing including (i) traducer that significantly amplifies the optical emission signal of the fluorescent label; miniaturized silicon chips that allow the detection of DNA by electrochemical transduction (Cover Page Analyst, 2017, 142, 2090–2093) or capacitive-inductive; (iii) development of DNA detection methods amplification-free.

(iv) *New Materials&Systems for Environmental Sensors*, focusing on miniaturized devices for environmental sensors using new nanostructured materials (nanowalls, nanorod of NiOx and ZnOx metal oxides, Au and Ni metals and Silicon nanowires (Si NWs), C-dots, Graphene) for monitoring environmental pollutants.

The research activity includes 286 Contributions:

- 145 Publications (35 as corresponding author, 3 Covers on International Peer Rev Journals, 1 Hot Papers on International Peer Rev Journals)
- 133 Communications at national and international congresses
- 26 Patents
- Hindex: 29; Cit: 2241 (Scopus)