

CURRICULUM VITAE

PERSONAL INFORMATION

Fiorilli Sonia Lucia

Researcher unique identifiers: ORCID 0000-0002-2986-0528; Scopus Author ID: 6603314855

Date of birth: 01-07-1976

Nationality: Italian

• EDUCATION

- 01-03-2005, PhD in Materials Science and Technology, XVII Cycle, Department of Materials Science and Chemical Engineering, Politecnico di Torino, Italy, with the thesis "SBA-15 mesoporous silicas as host matrices for functional molecules", Tutor: Prof. Edoardo Garrone.
- December 2000, Master of Science in Industrial Chemistry, Università degli Studi di Torino, Italy, with a thesis on spectroscopic characterization of acidic zeolites.

• CURRENT POSITION

Associate Professor of Fundamentals of Chemical Technology of at the Department of Applied Science and Technology, Politecnico di Torino, Italy

• PREVIOUS POSITIONS

- 2008–2014: Assistant Professor of Fundamentals of Chemical Technology at the Department of Applied Science and Technology, Politecnico di Torino, Italy
- November 2005 – 2008: Researcher in the framework of Progetto FIRB RBLA03Z3LN – "Laboratorio di Tecnologie Elettrobiologiche Miniaturizzate per l'Analisi e la Ricerca – LATEMAR", Department of Physics, Politecnico di Torino, Italy
- January 2005- November 2005: Post-doctoral Research Fellow in the framework of PRIN 2004 – Materiali nanostrutturati a porosità controllata per applicazioni tecnologiche innovative-, Material Science and Chemical Engineering Department, Politecnico di Torino, Italy
- 2001-2004: PhD student, at the Materials Science and Chemical Engineering Department, Politecnico di Torino, Italy

• FELLOWSHIPS

- 2003: 6 months Fellowship at the School of Chemistry of St. Andrews University (UK), under the supervision of Prof. Paul Wright.
- 2004: 1 month Fellowship at the Ecole Nationale Supérieure de Chimie, Montpellier, France, under the supervision of Prof. Daniel Brunel.
- March 2010: Visiting researcher at the Green Chemistry Centre of Excellence, Department of Chemistry, University of York, UK.
- June 2014: Visiting professor at the University of Laval (Quebec), Canada.

• SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

2010 – current: 4 PhD/ 10 Master Students

Department of Applied Science and Technology, Politecnico di Torino, Italy.

• TEACHING ACTIVITIES

- current: Chair in Chemistry, Politecnico di Torino, (>200 student), 120 h/year

- current: Co-lecturer – 3rd level PhD course, “Physical chemistry of materials for nanotechnologies”, Politecnico di Torino, Italy.
- 2005-2008: Co-lecturer in Chemistry, Politecnico di Torino, Italy.

- **INSTITUTIONAL RESPONSIBILITIES**

- Since 2013: Member of the PhD board "Material Science and Technology" program of Politecnico di Torino

- **COMMISSIONS OF TRUST**

- In 2016, Guest Editor of the Bioengineering Special Issue “Mesoporous Materials in Drug Delivery and Regenerative Engineering”.
- Since 2008, Reviewer activity for Minister of Italian Research and University (MIUR)
- Since 2000, Regular service as Peer-Reviewers for more than 10 international Journals including Materials Letters, Journal of Material Science, Materials in Medicine, Microporous and Mesoporous Materials, Journal of Nanoparticle Research, Journal of Sol-Gel Science and Technology

- **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

- Since 2016 Member of SIB (Italian Society for Biomaterials)
- Since 2016 Member of AIMAT (Associazione Italiana Ingegneria dei Materiali)
- Since 2008 Member of INSTM (Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia Dei Materiali) and Member of the Reference Centre for Materials with Controlled Porosity

- **INVITED LECTURES**

- 2015: Invited lecture at the Namur University, Belgium, “IR spectroscopy of adsorbed probe molecules: a powerful and versatile tool to investigate the surface properties of solids”.
- 2006: Cycle of Lectures on “Surface Functionalization”- Master in Biotechnological Applications of Nanotechnologies”, University of Eastern Piedmont.
- 2006: Cycle of invited lectures on “Surface Functionalization techniques”- Olivetti I-Jet

- **MAJOR COLLABORATIONS**

- Prof. Vallet-Regí, Grupo de Investigación Biomateriales Inteligentes, Dpto. Química Inorgánica y Bioinorgánica, Fac. Farmacia - U.C.M, Madrid, Spain: surface functionalisation of mesoporous nanoparticles, TEM
- Institute of Biomaterials, Department of Materials Science and Engineering University of Erlangen-Nuremberg (Prof. A. Boccaccini): mesoporous bioactive glasses doped with ions
- Charité-Universitätsmedizin in Berlin, Germany: in vivo tests on nanoparticles and drug release
- University of Sheffield, UK (Prof. Sheila McNeil): Skin model for in vivo tests
- Prof. P. Pescarmona, Chemical Engineering Department, University of Groningen (Netherlands): nanostructured catalysts, surface characterization by spectroscopic techniques
- Prof. C. Aprile, Research Center for Materials Chemistry, University of Namur (Belgium): nanostructured catalysts, surface characterization by spectroscopic techniques
- Prof. D. Mcquarries, Green Chemistry Center of Excellence University of York, (UK): functionalization of mesoporous materials
- Prof. F. Kleitz, Department of Chemistry - Centre de Recherche sur les Matériaux Avancés – University of Laval (Quebec, Canada): mesoporous materials for biomedical, energy and environmental applications
- Industrial Chemistry Department of University of Bologna (Prof. E. Tonelli and Prof. E. Scavetta): XPS and FT-IR characterization of electrochemical sensors

On-going Grants

<i>Project Title</i>	<i>Funding source</i>	<i>Amount (Euros)</i>	<i>Period</i>	<i>Role</i>
ZODIAC "Zwitterionic mesostructured glasses: powerful devices for bone regeneration"	POLITECNICO DI TORINO BANDO "METTI IN RETE LA TUA IDEA DI RICERCA"	150.000	15/09/2017 15/09/2019	Principal Investigator
BOOST "Biomimetic trick to re-balance osteoblasts-osteoclast loop in osteoporosis treatment: a topological and materials driven approach"	EU-ERC-Consolidator	1.977.500€ (GA 681798)	1/05/2016-30/04/2021	Team member of the PI
-MOZART- Mesoporous matrices for localized pH-triggered release of therapeutic ions and drugs"	H2020-NMP6-2015	Total budget 4.651.228,75€; budget Politecnico di Torino 925 000 € (GA 685872)	1/11/2015-31/10/2019	Component of the research unit. Task leader of "Synthesis and characterisation of MTGs containing Ag ⁺ , Cu ²⁺ , Sr ²⁺ , Ce ³⁺ ". Appointed person for Nanosafety Cluster

Past Grants

<i>Project Title</i>	<i>Funding source</i>	<i>Amount (Euros)</i>	<i>Period</i>	<i>Role</i>
ENER CARD – "Thermochemical conversion of biomasses"	Regional project -Poli Innovazione IV programma-	150 000 €	2014-2105	Participant
"Nanomaterials pour	Bilateral project Italia-	10 000 €	2013-2015	Unit research member

l'environnement"	Quebec QU13MO9			
"Bio-derived silicas as catalysts for green processes"	British-Italian Partnership Programme	10 000 €	2009-2010	Coordinator
"Materials with hierarchical porosity: chemical-physical characterization of the adsorption properties and their chromatographic applications"	National funding-PRIN (Research Programmes of National Interest)-MIUR	109 164 €	2010-2012	Unit research member
"Improvement of the nano-mechanical performances and of the surface functionalization of cantilevers: a new class of mass chemosensors"	National funding-PRIN (Research Programmes of National Interest) - 2007- MIUR	150 400 €	2008-2010	Unit research member
"Structural and chemical-physical characterization of composite metallo-ceramic materials from zeolitic precursors"	National funding-PRIN (Research Programmes of National Interest) - 2005 MIUR	152 000 €	2005-2007	Unit research member
"Nanostructured materials with controlled porosity for innovative technological applications"	National funding-PRIN (Research Programmes of National Interest) - 2003- MIUR	160 000 €	2004-2006	Unit research member

(LATEMAR) Laboratory of miniaturized electro-bio- chemical technologies for the analysis and research”	National funding- through FIRB 2003- 2004 grants -MIUR	15110 (kilo€)	2005-2008	Unit research member, Supervisor of the activity “Surface Functionalization” activity
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TRACK-RECORD

Collectively, according to SCOPUS, Sonia Fiorilli has published **63** peer reviewed international papers on high-impact factor journals (H-index = 19).

Selected 10 publications:

- 1) Pontiroli L.; Dadkhah M.; Novajra G.; Tcacencu I.; Fiorilli S.; Vitale-Brovarone C., “An aerosol spray-assisted approach to produce mesoporous bioactive glass microspheres under mild acidic aqueous conditions” MATERIALS LETTERS (2017) vol. 190, pp.111-114. IF: 2,437.
- 2) Dadkhah M., Pontiroli L., Fiorilli S., Manca A., Tallia F., Tcacencu I., Vitale-Brovarone C. Preparation and characterisation of an innovative injectable calcium sulphate based bone cement for vertebroplasty application” JOURNAL OF MATERIALS CHEMISTRY B (2017) Volume 5, pp. 102-115. IF: 3,187.
- 3) Baino F., Fiorilli S., Vitale-Brovarone C., “Bioactive glass-based materials with hierarchical porosity for medical applications: review of recent advances”, ACTA BIOMATERIALIA (2016) vol. 42, p. 18-32. IF: 6,683.
- 4) Fiorilli S., Cauda V., Pontiroli L., Vitale-Brovarone C., Onida B. “Aerosol-assisted synthesis of mesoporous aluminosilicate microspheres: the effect of the aluminum precursor”, NEW JOURNAL OF CHEMISTRY (2016) vol. 40, p. 4420-4427. IF: 3,247.
- 5) Stassi S., Cauda V., Fiorilli S., Ricciardi C. “Surface area enhancement by mesoporous silica deposition on microcantilever sensors for small molecule detection”, JOURNAL OF MATERIALS CHEMISTRY. C (2015) vol. 3, p. 12507-12513. IF: 5,076.
- 6) Lueangchaichaweng W., Brooks N.R., Fiorilli S., Gobechiya E., Lin K., Li L., Parres-Esclapez S., Javon E., Bals S., Van Tendeloo G., Martens J. A., Kirschhock C. E. A., Jacobs P. A., Pescarmona P. P., “Gallium Oxide Nanorods: Novel, Template-Free Synthesis and High Catalytic Activity in Epoxidation Reactions” ANGEWANDTE CHEMIE (2014) vol. 53, p. 1585-1589. IF: 12.111.
- 7) Fiorilli S., Tallia F., Pontiroli L., Vitale-Brovarone C., Onida B., “Spray-dried mesoporous silica spheres functionalized with carboxylic groups”, MATERIALS LETTERS (2013) vol. 108, p. 118-121. IF: 2,437.
- 8) Ricciardi C., Fiorilli S., Bianco S., Canavese G., Castagna R., Ferrante I., Digregorio G., Marasso S. L., Napione L., Bussolino F., “Development of microcantilever based biosensor array to detect Angiopoietin-1, a marker of tumor angiogenesis” BIOSENSORS & BIOELECTRONICS (2010) vol. 25, p. 1193-1198. IF: 6,675.
- 9) Fiorilli S., Camarota, B., Perrachon, D., Concetta Bruzzoniti, M., Garrone, E., Onida, B. “Direct synthesis of large-pore ethane-bridged mesoporous organosilica functionalized with carboxylic groups” CHEMICAL COMMUNICATIONS (2009) vol. 29, pp. 4402-4404. IF: 6,628.
- 10) Fiorilli S., Rivolo P., Descrovi E., Ricciardi C., Pasquardini L., Lunelli L., Vanzetti L., Pederzoli C., Onida B., Garrone E., “Vapour-phase self-assembled monolayers of aminosilane on silicon substrates”, JOURNAL OF COLLOID AND INTERFACE SCIENCE (2008), vol. 321, p. 235-241. IF: 3,758.

Granted patent

*“Microfluidic device for the purification, amplification and detection of nucleic acids for diagnosis”
TO2010A000543, Politecnico di Torino, Fondazione Bruno Kessler, Università degli Studi di Trieste.*