

CURRICULUM VITAE

EUROPEAN FORMAT

(LAST FIVE YEARS)

PERSONAL INFORMATION

Name, Surname **Letizia Savio**

Address

Phone

Fax

E-mail

Website

Nationality

RESEARCH FIELD **Material science (experimental), surface science and nanoscience.**

WORK EXPERIENCE

If CNR staff member: **BADGE N. (MATICOLA): 11115**
QUALIFICATION: RESEARCHER
LEVEL: III

PRESENT POSITION

Date	Since October 1st, 2008
Name and address of employer	Consiglio Nazionale delle Ricerche, Istituto dei Materiali per l' Elettronica ed il Magnetismo (IMEM-CNR), Genova Via Dodecaneso 33, 16146 Genova, IT.
Type of business or sector	Experimental research in surface science and nanoscience: spectroscopic and microscopic studies of two-dimensional systems. Particular attention was devoted to the molecule-surface interaction (with metallic surfaces, oxide ultra-thin films and graphene layers) for applications in catalysis, green chemistry and bio-interfaces.
Occupation or position held	Senior Researcher (since Jan. 2023) Researcher (Oct. 2008 – Dec. 2022)
Main activities and responsibilities	November 2016 -October 2020, Member of "Consiglio d'Istituto" (scientific board) of IMEM. January 2012 – December 2015, Responsible of Commessa (research group) MD.P06.002 (Properties of nanostructures surfaces and clusters) and reference person for the surface analysis laboratory at IMEM-Genova. December 2008 – July 2010, Added member of Consiglio d'Istituto di IMEM.
Notes	March – September 2011, Maternity leave.

EDUCATION AND TRAINING

Title of qualification awarded	Ph.D. in Physics.
Date	February 7 th , 2002
Name and type of organisation providing education and training	Università degli Studi di Genova.

Title of the thesis	Dynamics of the interaction of oxygen and ethylene with defected Ag surfaces. (Supervisor Prof. Mario Rocca / External supervisor Prof. Rodolfo del Sole, Università di Roma 2).
Principal subjects occupational skills covered	Experience with ultra high vacuum systems and with spectroscopic methods of use in surface and material science.
Evaluation	Excellent (Ottimo)
Title of qualification awarded	Degree in Physics (4 years).
Date	September 9 th , 1998
Name and type of organisation providing education and training	Università degli Studi di Genova.
Title of the thesis	HREELS study of the reactivity and electronic excitations of different O/Ag(001) phases. Supervisor Prof. Mario Rocca.
Principal subjects occupational skills covered	Experience with ultra high vacuum systems and high resolution electron energy loss spectroscopy (HREELS).
Evaluation	110/110 e lode.

**RESEARCH ACTIVITIES
RESEARCH SECTOR**

Letizia Savio has developed her research activity in the field of experimental material science. In particular, she has employed electron spectroscopies and scanning tunnelling microscopy to investigate the structure, reactivity and electronic properties of single crystal metal surfaces and of ultra-thin films (oxide layers, graphene and C-based nanostructures, monolayers of biological molecules).

Recent research activities
(last 5 years)

Recent research topics are:

I) Supported C-based nanostructures.

a) Characterization of the structure and reactivity of pristine, n-doped and defected graphene grown on Ni(111). Weak CO chemisorption and CO₂ production under cover were observed under UHV and NAP conditions, respectively.

b) Surface assisted synthesis of graphene nanoribbons and C-based nanostructures on Ag(110) starting from halogenated aromatic/cyclometallated precursors. Particular attention was devoted to the adsorption/reaction mechanisms and to the chemistry of the systems.

II) Ni NCs supported on ultrathin MgO/Ag(100) films.

The final morphology of MgO/Ag(100) monolayers depends both on usual growth parameters (temperature, Mg flux, O₂ pressure) and on additional factors as the cooling rate after growth and the accumulation of oxygen atoms at the metal-oxide interface. Ni NCs deposited on MgO monolayers assume exotic shapes and undergo spontaneous oxidation due to the availability of interface oxygen.

Technical skills

- Ultra high vacuum systems (UHV).
- X-ray photoemission spectroscopy (XPS) both with conventional X-ray source and with synchrotron light source.
- Low Temperature Scanning Tunnelling Microscopy (LT-STM).
- High Resolution Electron Energy Loss Spectroscopy (HREELS).

- Supersonic Molecular Beams and measurement of the gas-surface interaction dynamics with the “King&Wells” method.

ADDITIONAL INFORMATION

Teaching activity	<ul style="list-style-type: none"> • A.Y. 2016-17 and from 2019-20 till 2022-23: Adjunct professor, course of “Laboratorio di Fisica della Materia”, Physics Dept., UNIGE. • A.Y 2019-20 and 2020-21: Adjunct professor, course of “Surface Spectroscopies”, International Master SERP+, Chemistry Dept., UNIGE. • Since A.Y.2013-14: Co-teacher of the course “Tecniche microscopiche e spettroscopiche per l’analisi di superfici” for Ph.D. school in Physics, Physics Dept., UNIGE. <p>Advisor or co-advisor of 2 master theses in Physics or Material science and of 4 PhD theses.</p>
Recent scientific collaborations	<ul style="list-style-type: none"> - <i>May 2014 – at present.</i> Prof. G. Pacchioni, Dr. S. Tosoni, (Università di Milano Bicocca). Morphology of ultrathin MgO films and of Ni clusters deposited on them. STM measurements and ab-initio calculations. - <i>2013- at present:</i> Prof. Cristiana di Valentin (Università di Milano Bicocca). Self-assembly of GNRs and organometallic compounds at metal surfaces.
Managing of research projects.	<ul style="list-style-type: none"> - Progetto PRIN2017: “Metal Activated 2D cArbon-based platforMs (MADAM)”. Referente della sottounità IMEM-CNR. - Progetto Fondazione Compagnia di S. Paolo (2020-2023): “MC-nano - Nanostrutture a base carbonio drogate con atomi metallici per sensoristica e catalisi verde”. Principal Investigator. - Progetto bilaterale CNR-PAN 2017-19: “Catalytic conversion of N2O on ultrathin iron oxide films”. Responsabile per la parte italiana del progetto.
Organization of Conferences/Congresses	<p>Member of the organizing committee of:</p> <ul style="list-style-type: none"> • International Conference on Crystal Growth and Epitaxy (ICCGE20), to be held in Naples, 30 Jul. – 4 Aug. 2023. Co-chair of the session on “Surfaces and Interfaces”. • XXXV Symposium on Surface Science 3S’23, Courmayeur, 12-18 Mar. 2023 • Nanoalloy meeting 2019 (Genova, 4-7 Giugno 2019) • Project “Art&Science across Italy”, editions II (2018-20) and III (2020-22)
Editorial activity	<ul style="list-style-type: none"> - Referee for the following international scientific journals: Journal of Physical Chemistry, Physical Review Letters, The European Physical Journal, The e-Journal of Surface Science and Nanotechnology, Chirality, Applied Surface Science
Awards	<ul style="list-style-type: none"> - <i>2001:</i> Award of the Società Italiana di Fisica for the scientific production as a young scientist. - <i>2008:</i> Award of the Società Italiana di Fisica for the best presentation in the “material science” session at the SIF National Conference (Genova, September 22-27, 2008).

Additional duties *Jun. 2013- Jan. 2016 and Jan. 2020 -Jan. 2023: Member of the board of the Ph.D. school in Physics at UNIGE.*
Since Dec. 2022: Member of “Comitato Tecnico Scientifico” of START4.0 Competence Centre.

Languages Italian, mothertongue;
English, excellent (written and spoken)
French, basic.

Dissemination of results Since 2018, 5 invited talks at national and international conferences.

BIBLIOMETRY More than 100 publications in peer-reviewed international scientific journals;
8 book chapters;
2205 citations (1894 without self-citations) (source WOS)
H-index 24.

SELECTED PUBLICATIONS (LAST 5 YEARS)

1. “Formation of diphenyl-bipyridine units by surface assisted cross coupling in Pd-cyclometalated complexes.” J.E. Barcelon, M. Stojkowska, D. Perilli, G. Carraro, M. Smerieri, L. Vattuone, M. Rocca, G. Bracco, M. Dell’Angela, R. Costantini, A. Cossaro, L. Vaghi, A. Papagni, C. Di Valentin, L. Savio, *Appl. Surf. Sci.* 609, 155307 (2023).
2. “Well-ordered surface metal atoms complexation by deposition of Pd cyclometalated compounds on Ag (110)”. M. Stojkowska, D. Perilli, J.E. Barcelon, M. Smerieri, G. Carraro, T.H. Dinh, L. Vattuone, M. Rocca, G. Bracco, M. Dell’Angela, R. Costantini, A. Cossaro, L. Vaghi, A. Papagni, C. Di Valentin, L. Savio, *Appl. Surf. Sci.* 606, 154960 (2022).
3. “Boudouard reaction under graphene cover on Ni(111).” R. Davì, G. Carraro, M. Stojkowska, M. Smerieri, L. Savio, M. Lewandowski, J.J. Gallet, F. Bournel, M. Rocca, L. Vattuone, *Appl. Surf. Sci.* 599, 154065 (2022).
4. “Graphene growth on Ni (111) by CO exposure at near ambient pressure”, R Davì, G. Carraro, M. Stojkowska, M. Smerieri, L. Savio, M. Lewandowski, J.J. Gallet, F. Bournel, M. Rocca, L. Vattuone, *Chem. Phys. Lett.* 774, 138596 (2021). Editor’s Choice.
5. “Morphological characterization and electronic properties of pristine and oxygen-exposed graphene nanoribbons on Ag(110)”, J.E. Barcelon, M. Smerieri, G. Carraro, P. Wojciechowski, L. Vattuone, M. Rocca, S. Nappini, I. Piš, E. Magnano, F. Bondino, L. Vaghi, A. Papagni, L. Savio, *Phys. Chem. Chem. Phys.* 23, 7926 (2021).
6. “Correlating hydrophobicity to surface chemistry of microstructured aluminium surfaces”, L. Savio, K.B. Bhavitha, G. Bracco, G. Luciano, D. Cavallo, G. Paolini, S. Passaglia, G. Carraro, L. Vattuone, R. Masini, M. Smerieri, *Appl. Surf. Sci.* **542**, 148574 (2021).
7. “2D Ni Nanoclusters on Ultrathin MgO/Ag(100)”, L. Savio, M. Smerieri, J. Pal, E. Celasco, M. Rocca, L. Vattuone, *J. Phys. Chem. C* **124**, 482 (2020).
8. “Vibrational fingerprint of the catalytically-active FeO_{2-x} iron oxide phase on Pt(1 1 1)”, M. Stojkowska, R. Davì, G. Carraro, M. Smerieri, M. Lewandowski, M. Rocca, L. Vattuone, L. Savio, *Appl. Surf. Sci.* **512**, 145774 (2020).
9. “Chemisorption of CO on N-doped graphene on Ni(111)”. G. Carraro, E. Celasco, M. Smerieri, L. Savio, G. Bracco, M. Rocca, L. Vattuone, *Appl. Surf. Sci.* **428**, 775 (2018)
10. “Synthesis of corrugated C-based nanostructures by Br-corannulene oligomerization”. M. Smerieri, I. Pis, L. Ferrighi, S. Nappini, A. Lusuan, L. Vattuone, L. Vaghi, A. Papagni, E. Magnano, C. Di Valentin, F. Bondino, L. Savio, *Phys. Chem. Chem. Phys.* 20, 26161 (2018).

TRATTAMENTO DEI DATI PERSONALI, INFORMATIVA E CONSENSO

Il D.Lgs. 30/6/2003, n. 196 “*Codice in materia di protezione dei dati personali*” regola il trattamento dei dati personali, con particolare riferimento alla riservatezza, all’identità personale e al diritto di protezione dei dati personali; l’interessato deve essere previamente informato del trattamento .
La norma in considerazione intende come “trattamento” qualunque operazione o complesso di operazioni concernenti la raccolta, la registrazione, l’organizzazione, la conservazione, la consultazione, l’elaborazione, la modifica, la selezione, l’estrazione, il raffronto, l’utilizzo,

l'interconnessione, il blocco, la comunicazione, la diffusione, la cancellazione e la distruzione di dati, anche se non registrati in una banca dati.

In relazione a quanto riportato, autorizzo il CNR al trattamento dei dati contenuti nel presente *curriculum vitae* e nella documentazione della quale fa parte integrante

(*barrare la casella*) x Si, acconsento

Genova, July 13th, 2023