Salvatore Macis

Curriculum Vitae

Education and Research

3/2020 - 3/2021 **PostDoc position**, *Università La Sapienza*.
Project *Transition Metal Oxides for Technological Applications*
Funded by Univerisità La Sapienza

2018 - present **Research on the Italy-Japan bilateral project**, *Roma La Sapienza University* .
Project *Spettroscopia THz lineare, non lineare e risolta in tempo con sorgenti di radiazione di ultima generazione*
Funded by Ministero degli Affari Esteri e della Cooperazione Internazionale

2015 - 11/3/2019 **Condensed Matter Physics, Physics PhD** , *Roma Tor Vergata University* .
Thesis title *Deposition and characterization of thin MoO_3 films on Cu for technological applications*
Supervisors Prof. Ivan Davoli; Dott. Augusto Marcelli
Final grade Eccellente qualità con lode

2013 - 20/10/2015 **Condensed Matter Physics, MSc** , *Roma Tre University*.
Thesis title *Preparation and characterization of ultra-diluted samples via micro-deposition of droplets*
Supervisors Dott. Augusto Marcelli, Prof.ssa Maria A. Ricci
Final grade 110/110

2013 - 2014 **Alte scuole Roma Tre**, *Roma Tre University - School of excellence*.

2010 - 10/10/2013 **Physics, BSc**, *Roma Tre University*.
Thesis title *XAFS: investigation technique of condensed matter*
Supervisors Prof. Settimio Mobilio; Prof. Carlo Meneghini
Final grade 110/110 cum laude

2005 - 2010 **Scientific high school diploma at Liceo Scientifico Cavour**.

Publications

Articles

[1] S. Macis, L. Tomarchio, S. Tofani, J. Rezvani, L. Faillace, S. Lupi, A. Irizawa and A. Marcelli *Angular dependence of copper surface damage induced by an intense coherent THz radiation beam*, Condensed Matter, Special Issue THz: Research Frontiers for New Sources, Imaging and Other Advanced Technologies, under review, February 2020

[2] A. D'Elia, C. Cepek, M. de Simone, S. Macis, B. Belec, M. Fanetti, P. Piseri, A. Marcelli, M. Coreno *Interplay among Work Function, electronic structure and stoichiometry in nanostructured vanadium oxides films*, Physical Chemistry Chemical Physics, under review, February 2020

[3] M. Miliucci, M. Lucci, I. Colantoni, F. De Matteis, F. Micciulla, A. Clozza, S. Macis, I. Davoli *Characterization of CdS sputtering deposition on Low Temperature Pulsed Electron Deposition Cu(In, Ga)Se2 solar cells*, Thin Solid Films, 697, 137833, January 2020

[4] J. Scifo, A. Marcelli, B. Spataro, D. Hampai, S. Dabagov, S. Sarti, A. Di Trolio, R. Moscatelli, S. Macis, L. Faillace *Molybdenum Oxides Coatings for High Demanding Accelerator Components*, Instruments 3 (4), 61 December 2019

[5] G.Cibin, A. Marcelli, V. Maggi, G. Baccolo, D. Hampai, P. E. Robbins, A. Liedl, C. Polese, A. D'Elia, S. Macis, A. Grilli, A. Raco, *Synchrotron radiation research and analysis of the particulate matter in deep ice cores: an overview of the technical challenges*, Condensed matter, 4, 61, June 2019

[6] S. Macis, J. Rezvani, I. Davoli, G. Cibin, B. Spataro, J. Scifo, L. Faillace and A. Marcelli, *Structural Evolution of MoO_3 Thin Films Deposited on Copper Substrates upon Annealing: An X-ray Absorption Spectroscopy Study*, Condensed Matter, 4(2) 41, April 2019

[7] A. Balerna, S. Bartocci, G. Batignani, A. Cianchi, E. Chiadroni, M. Coreno, A. Cricenti, S. Dabagov, A. Di Cicco, M. Faiferri, C. Ferrante, M. Ferrario, G. Fumero, L. Giannessi, R. Gunnella, J. José Leani, S. Lupi, S. Macis, R. Manca, A. Marcelli, C. Masciovecchio, M. Minicucci, S. Morante, E. Perfetto, M. Petrarca, F. Pusceddu, J. Rezvani, J. I. Robledo, G. Rossi, H. J. Sanchez, T. Scopigno, G. Stefanucci, F. Stellato, A. Trapananti and F. Villa, *The Potential of EuPRAXIA@SPARC_LAB for Radiation Based Techniques*, Condensed Matter, 4(1) 30 April 2019

[8] S. Macis, C. Aramo, C. Bonavolontà, G. Cibin, A. D'Elia, I. Davoli, M. De Lucia, M. Lucci, S. Lupi, M. Miliucci, A. Notargiacomo, C. Ottaviani, C. Quaresima, M. Scarselli, J. Scifo, B. Spataro, M. Valentino, P. De Padova and A. Marcelli. *MoO_3 films grown on polycrystalline Cu: morphological, structural and electronic properties* Journal of Vacuum Science and Technology A, 37, 021513, March 2019

[9] F. Galdenzi, A. Marcelli, G. Della Ventura, G. Cibin, S. Macis, A. Marcelli *Accurate $Fe_3 + /Fe_tot$ ratio from XAS spectra at the Fe K-edge*, Radiation Physics and Chemistry, 0969-806X, December 2018

[10] G. Baccolo, G. Cibin, B. Delmonte, D. Hampai, A. Marcelli, E. Di Stefano, S. Macis and V. Maggi *The Contribution of Synchrotron Light for the Characterization of Atmospheric Mineral Dust in Deep Ice Cores: Preliminary Results from the Talos Dome Ice Core (East Antarctica)*, Condensed Matter, 3(3), 25; August 2018

[11] G. Della Ventura, F. Galdenzi, G. Cibin, R. Oberti, W. Xu, S. Macis and A. Marcelli *Iron oxidation dynamics vs. temperature of synthetic potassic-ferro-richterite: A XANES investigation*, Physical Chemistry Chemical Physics 20(33), August 2018

[12] E. Tamburri, R. Carcione, S. Politi, M. Angjellari, L. Lazzarini, L.E. Vanzetti, S. Macis, G. Pepponi and M.L. Terranova*Shungite Carbon as Unexpected Natural Source of Few-Layer Graphene Platelets in a Low Oxidation State*, Inorganic Chemistry 57(14) 8487–8498, July 2018

[13] S. Macis, G. Cibin, V. Maggi, G. Baccolo, D. Hampai, B. Delmonte, A. D'Elia and A. Marcelli *Microdrop deposition technique: preparation and characterization of diluted suspended particulate samples*, Condensed Matter 3(3):21, July 2018

[14] E. Tamburri, R. Carcione, F. Vitale, A. Valguarnera, S. Macis, M. Lucci, M.L. Terranova *Exploiting the Properties of Ti-Doped CVD-Grown Diamonds for the Assembling of Electrodes*, Advanced Materials Interfaces 4(18), 1700222, May 2017

Proceedings

[1] R. Albertini, S. Macis, G. Campi, A. Marcelli, A. A. Ivanov, A. Menushenkov, J. Purans, P. Giraldo Gallo, T.H. Geballe, I.R. Fisher, A. Bianconi, *Imaging local strain spatial fluctuations in superconducting BaPb1-xBixO3 by scanning micro-XANES*, in: QUANTUM COMPLEX MATTER Publisher: Superstripes Press ISBN: 9788866830900, August 2018

[2] S. Macis, A. Marcelli, *Deposition and characterization of MoO_3 films on copper to improve accelerating technologies*, in: QUANTUM COMPLEX MATTER Publisher: Superstripes Press ISBN: 9788866830900, August 2018

[3] Z. Du, C. Xiao, A. Marcelli, G. Cibin, G. Baccolo, S. Macis, W. Xu, A. Puri, V. Maggi, S. Liu, Y. Zhu,*Identification of sources of iron in mineral dust (aerosol) from Western China, Arctic and East Antarctica regions by chemical speciation using X-ray absorption near-edge structure (XANES) spectroscopy*, in: Aerosols in snow and ice. Markers of environmental pollution and climatic changes: European and Asian perspectives, Publisher: Superstripes Press, Rome, Italy, ISBN 9788866830771, September 2017

[4] R. Albertini, S. Macis, G. Campi, A. Ivanov, V. Ivanov, A. Marcelli and A. Bianconi, *Mapping by scanning micro XANES (SμXANES) of intrinsic spatial local inhomogeneity in superconducting $BaPb_{1-x}Bi_xO_3$*, Superstripes, 2017 June 2017

[5] S. Macis, G. Cibin and A. Marcelli, *Microdrop deposition technique: preparation and characterization of ultradiluted samples*, in: Atomically Controlled Surfaces, Interfaces and Nanostructures, Publisher: Superstripes Press, Rome, Italy, ISBN: 9788866830597, October 2016

[6] S. Macis, G. Cibin and A. Marcelli, *Microdrop deposition for ultra-diluted samples preparation, in: Nanoscale excitations in emergent materials*; NEEM 2015, Publisher: Superstripes Press, Rome, Italy, ISBN: 9788866830450, November 2015

[7] A. D'Elia, S. Macis, G. Cibin, G. Della Ventura and A. Marcelli, *Oxidation processes of Fe- amphiboles at high temperature*, in: Nanoscale excitations in emergent materials; NEEM 2015, Publisher: Superstripes Press, Rome, Italy, ISBN: 9788866830450, November 2015

Oral contributions

[1] Spectroscopy and Imaging with THz Radiation using Ultimate radiation Sources *THz to UV transmission of 3D Graphene micro structures*, 10-11 December 2019, Rome, Italy

[2] The 2nd Bilateral Workshop 3D Graphene, *THz to UV transmission of 3D Graphene micro structures*, 12-13 October 2019, Hefei, China

[3] PIERS 2019, *Surface damage angular dependence of metallic systems by high gradient THz radiation*, 17-20 June 2019 Rome, Italy

[4] 10th Young Researcher Meeting, *Thin conducting MoO_3 films on copper. A new opportunity for technological applications.*, 18-21 June 2019 Rome, Italy

[5] LIV Zakopane School of Physics, *Thin conducting MoO_3 films on copper for technological applications*,21-25 May 2019 Zakopane, Poland

[6] High precision X-ray measurements, *X-Ray characterization of thin conducting MoO_3 films on copper. A new opportunity for technological applications*, 17-19 October 2018 Frascati, Italy

[7] XAFS 2018, *Correlated disorder in $BaPb_{1-x}Bi_xO_3$ superconductor*, 22–27 July 2018 Kraków, Poland

Posters

[1] ICFDT5 2018 Conference *Thin and ultrathin conducting MoO_3 films on copper: a new route for improved RF devices*, 3-5 October 2018 INFN-LNF, Italy

[2] Bilateral Workshop 3D Graphene *High electric field breakdown on MoO_3-carbon nanotubes coating on copper for technological applications*, 1-2 October 2018 INFN-LNF & Sapienza University, Italy

[3] XAFS 2018 *Thin conductive MoO_3 films on copper technologies application: AES and XAS study of electronic and structural properties*, 22–27 July 2018 Kraków, Poland

[4] QCM 2018 *Micro-XAS measures of the local structure changes in $BaPb_{1-x}Bi_xO_3$ as a function of temperature*, 11-15 June 2018 INFN-LNF, Italy

[5] QCM 2018 *Thin and ultrathin conducting MoO_3 films on copper for technological application: a XAS study of electronic and structural properties*, 11-15 June 2018 INFN-LNF, Italy

[6] SUPERSTRIPES 2017 *Micro-XAS measures of the local structure changes in $BaPb_{1-x}Bi_xO_3$ as a function of temperature*, 4-10 June 2017in Ischia, Italy

[7] FANO PRIZE 2016 *Hybrid CIGS-TiO_2 thin film solar cells by sol gel method*, 1 November 2016 CNR Headquarters, Rome, Italy

[8] ACSIN 2016 *Local refractive index variation of FIB milled CVD diamond areas via Raman and IR micro-reflectivity*, 9-15 October 2016, Rome, Italy

[9] ACSIN 2016 *Microdrop deposition technique: preparation and characterization of ultradiluted samples*, 9-15 October 2016, Rome, Italy

[10] NEEM 2015 *Oxidation processes of Fe-amphiboles at high temperature*, 12-14 October 2015, Rome, Italy

[11] NEEM 2015 *Microdrop deposition for ultra-diluted samples preparation*, 12-14 October 2015, Rome, Italy

Working Experience

5/2019 **Experiment**, *Osaka University, ISIR THz FEL*, Osaka, Japan.
High electric field irradiations on MoO_3/Cu and MoO_3/Al samples

10/2018 **Beamtime**, *ESRF Synchrotron, BM08 beamline* , Grenoble, France.
ReflEXAFS study of MoO3/Cu interface for modern accelerating devices

9/2018 **Experiment**, *Osaka University, ISIR THz FEL*, Osaka, Japan.
High electric field irradiations on MoO_3/Cu samples

6/2018 **Experiment**, *Osaka University, ISIR THz FEL*, Osaka, Japan.
High electric field irradiations on copper surfaces

7/2017 **Beamtime**, *ELETTRA Synchrotron, XRD1 beamline* , Trieste, Italy.
XRD studies of p-Terphenyl as a function of temperature

12/2016 **Beamtime**, *ESRF Synchrotron, BM08 beamline* , Grenoble, France.
Chemical activities of environmental pollutants in aerosols stored in snow and ice-core from the Western China and Arctic Atmosphere

9/2016 **Beamtime**, *Diamond Synchrotron, B18 beamline*, Harwell, Oxford, UK.
Probing local refractive index variation of FIB milled CVD diamond microareas via IR microreflectivity and KK transformation

6/2016 **Beamtime**, *ESRF Synchrotron* , Grenoble, France.
Local structure changes in $BaPb_{1-x}Bi_xO_3$ as a function of temperature correlated with CDW onset by dispersive XAS

4/2016 **Beamtime**, *ESRF Synchrotron, ID03 beamline*, Grenoble, France.
XAFS study of structural and magnetic effects induced by intercalation on Gr/Co/Ir systems

3/2016 **Beamtime**, *ESRF Synchrotron ID03 beamline*, Grenoble, France.
XRF study of structural and magnetic effects induced by intercalation on Gr/Co/Ir systems

11-12/11/2014 **Training course**, *Diamond Light Source Synchrotron*, Oxfordshire, UK.
Multivariate IR Microspectroscopy Analysis Training Course

7/2014 - 9/2014 **Research Thesis**, *Diamond Synchrotron, B18 beamline*, Harwell, Oxford, UK.
Optimization of Microdrop setup and XRF measures

Teaching

3 - 6/2019 Assistant in Physics I, Tor Vergata Engineering faculty, 30+ hours

3 - 6/2019 Assistant in Physics, Tor Vergata Biology faculty, 50+ hours

3 - 6/2018 Assistant in Physics, Tor Vergata Biology faculty, 100+ hours

10/2017 - 1/2018 Assistant in Experimental Physics 2, Tor Vergata Material Science faculty 10+ hours

3 - 6/2017 Assistant in Physics, Tor Vergata Biology faculty 100+ hours

10/2016 - 1/2017 Assistant in Experimental Physics 1, Tor Vergata Material Science faculty 100+ hours

10/2016 - 1/2017 Assistant in Experimental Physics 2, Tor Vergata Material Science faculty 30+ hours

3 - 6/2016 Assistant in Physics, Tor Vergata Biology faculty 100+ hours

10/2015 - 1/2016 Assistant in Experimental Physics 1, Tor Vergata Material Science faculty 100+ hours

3-6/2014 Assistant in Data Analysis Laboratory, Roma Tre Biology faculty 50+ hours

Languages

Italian Mother tongue

English Fluent

Computer Skills

Scientific software Labview, Origin, Matlab

Office Productivity Microsoft Office, LaTeX

Operative systems GNU/Linux, Scientific Linux, Microsoft Windows

Awards

2013 **Scholarship supplied by the Roma Tre University**

Three-monts scholarship by the Roma Tre University awarded to support outstanding students during their thesis research abroad

2013 **Scholarship supplied by the Roma Tre University**

Scholarship awarded by the Roma Tre University to support outstanding students during their first year of Master's Degree

2013 **Alte scuole Roma TreRoma Tre University**

School of excellence, first year partecipation

2012 **Scholarship supplied by the Roma Tre University**

Scholarship awarded by the Roma Tre University to support outstanding students during their second year of Bachelor's Degree

Rome, March 2, 2020