



Salvatore Macis

WORK EXPERIENCE

Post-Doc Position

University of La Sapienza [01/05/2021 – Current]

City: Rome

Country: Italy

Post-Doc Position on the project "*Proprietà Elettromagnetiche lineari e non lineari di materiali topologici Weyl e Dirac*"

Post-Doc Position

University of La Sapienza [01/03/2020 – 26/04/2021]

City: Rome

Country: Italy

Post-Doc Position on the project "*Transition Metal Oxides for Technological Applications*"

Research scholarship

University of La Sapienza [01/07/2019 – 31/12/2020]

City: Rome

Country: Italy

Research scholarship on the project "*Spettroscopia THz lineare, non lineare e risolta in tempo con sorgenti di radiazione di ultima generazione*"

EDUCATION AND TRAINING

PhD in Physics, Eccellente qualità con Lode

Tor Vergata University [01/11/2015 – 11/03/2019]

Address: Via della Ricerca Scientifica 1, 00133 Rome (Italy)

Master Degree in Physics, 110/110

Roma Tre University [11/10/2013 – 20/10/2015]

Address: Via della Vasca Navale 84, 00146 Rome (Italy)

Bachelor Degree in Physics, 110/110 e Lode

Roma Tre University [01/10/2010 – 10/10/2013]

Address: Via della Vasca Navale 84, 00146 Rome (Italy)

Scientific High School Diploma

Liceo Scientifico Cavour [2005 – 2010]

Address: Via delle Carine 1, 00184 Rome (Italy)

PUBLICATIONS

Evidence of giant refraction in ferroelectric supercrystals from broadband optical spectroscopy

[2022]

L. Falsi, S. Macis, Y. Gelkop, L. Tartara, E. Bonaventura, P. Di Pietro, A. Perucchi, Y. Garcia, G. Perepelitsa, E. Del Re, A. J. Agranat, and S. Lupi, *Physical Review Letter*, submitted April 2022

Infrared Plasmons in Ultrahigh Conductive PdCoO₂ Metallic Oxide

[2021]

S. Macis, L. Tomarchio, S. Tofani, F. Piccirilli, M. Zacchigna, V. Aglieri, A. Toma, G. Rimal, S. Oh and S. Lupi, *Communications Physics*, Reviewed April 2022

Low Energy Electrodynamics of CrI₃ Layered Ferromagnet

[2021]

L. Tomarchio, S. Macis, L. Mosesso, A. Grilli, M. Cestelli Guidi, R. J. Cava and S. Lupi, *Scientific Reports*, **11**(1), 1-8, October 2021

PANI-Modified Ti-Doped CVD Diamond As Promising Conductive Platform to Mimic Bioelectricity Functions

[2021]

S. Politi, S. Battistoni, R. Carcione, L. Montaina, S. Macis, S. Lupi, E. Tamburri, *Advanced Materials Interfaces*, **8**(24), **2101401**, November 2021

Disordered Photonics Behavior from Terahertz to Ultraviolet of a 3-Dimensional Graphene Network

[2021]

L. Tomarchio, S. Macis, A. Grilli, M. Romani, M. Cestelli Guidi, K. Hu, S. Kukunuri, S. Jeong, A. Marcelli, Y. Ito, and S. Lupi, *Nature Asia*, **13**(1), **1-8**, October 2021

Structural anisotropy in three dimensional macroporous graphene: A polarized XANES investigation

[2021]

S.J. Rezvani, A. D'Elia, S. Macis, S. Nannarone, S. Lupi, F. Schütt, F. Rasch, R. Adelung, B. Lu, Z Zhang, L. Qu, X. Feng, A. Romani Vázquez, A. Marcelli, *Diamond and Related Materials*, **111**(1), **108171**, January 2021

A novel approach for green synthesis of WO₃ nanomaterials and their highly selective chemical sensing properties

[2020]

V. Galstyan, N. Poli, A. D'Arco, S. Macis, S. Lupi and E. Comini, *Journal of Materials Chemistry A*, **8**, **20373-20385**, August 2020

Spatially Resolved Spectral Imaging by A THz-FEL

[2020]

A. Irizawa, M. Fujimoto, K. Kawase, R. Kato, H. Fujiwara, A. Higashiya, S. Macis, L. Tomarchio, S. Lupi, A. Marcelli and S. Suga, *Special Issue THz: Research Frontiers for New Sources, Imaging and Other Advanced Technologies, Condensed Matter*, **5**(2), **38**, June 2020

Angular dependence of copper surface damage induced by an intense coherent THz radiation beam

[2020]

S. Macis, L. Tomarchio, S. Tofani, J. Rezvani, L. Faillace, S. Lupi, A. Irizawa and A. Marcelli, *Special Issue THz: Research Frontiers for New Sources, Imaging and Other Advanced Technologies, Condens. Matter*, **5(1)**, **16**, March 2020

Interplay among Work Function, electronic structure and stoichiometry in nanostructured vanadium oxides films

[2020]

A. D'Elia, C. Cepek, M. de Simone, S. Macis, B. Belec, M. Fanetti, P. Piseri, A. Marcelli, M. Coreno, *Physical Chemistry Chemical Physics*, **22**, **6282-6290**, February 2020

Characterization of CdS sputtering deposition on Low Temperature Pulsed Electron Deposition Cu(In, Ga)Se₂ solar cells

[2020]

M. Miliucci, M. Lucci, I. Colantoni, F. De Matteis, F. Micciulla, A. Clozza, S. Macis, I. Davoli, *Thin Solid Films*, **697**, **1378-1383**, January 2020

Molybdenum Oxides Coatings for High Demanding Accelerator Components

[2019]

J. Scifo, A. Marcelli, B. Spataro, D. Hampai, S. Dabagov, S. Sarti, A. Di Trollo, R. Moscatelli, S. Macis, L. Faillace, *Instruments* **3** (4), **61** December 2019

Synchrotron radiation research and analysis of the particulate matter in deep ice cores: an overview of the technical challenges

[2019]

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, *Condensed matter*, **4**, **61**, June 2019

Structural Evolution of MoO₃ Thin Films Deposited on Copper Substrates upon Annealing: An X-ray Absorption Spectroscopy Study

[2019]

S. Macis, J. Rezvani, I. Davoli, G. Cibin, B. Spataro, J. Scifo, L. Faillace and A. Marcelli, *Condensed Matter*, **4(2)** **41**, April 2019

The Potential of EuPRAXIA@SPARC_LAB for Radiation Based Techniques

[2019]

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. I. Robledo, G. Rossi, H. J. Sanchez, T. Scopigno, G. Stefanucci, F. Stellato, A. Trapananti and F. Villa, *Condensed Matter*, **4(1)**, **30**, April 2019

MoO₃ films grown on polycrystalline Cu: morphological, structural and electronic properties

[2019]

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, *Journal of Vacuum Science and Technology A*, **37**, **021513**, March 2019

Accurate Fe³⁺ / Fetot ratio from XAS spectra at the Fe K-edge

[2018]

F. Galdenzi, A. Marcelli, G. Della Ventura, G. Cibir, S. Macis, A. Marcelli, *Radiation Physics and Chemistry*, **175**, 10808 **8**, December 2018

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)

[2018]

G. Baccolo, G. Cibir, B. Delmonte, D. Hampai, A. Marcelli, E. Di Stefano, S. Macis and V. Maggi, *Condensed Matter*, **3**(3), **25**, August 2018

Iron oxidation dynamics vs. temperature of synthetic potassic-ferro-richterite: A XANES investigation

[2018]

G. Della Ventura, F. Galdenzi, G. Cibir, R. Oberti, W. Xu, S. Macis and A. Marcelli, *Physical Chemistry Chemical Physics*, **20**(33), **21764-21771** August 2018

Shungite Carbon as Unexpected Natural Source of Few-Layer Graphene Platelets in a Low Oxidation State

[2018]

E. Tamburri, R. Carcione, S. Politi, M. Angjellari, L. Lazzarini, L.E. Vanzetti, S. Macis, G. Peponi and M.L. Terranova, *Inorganic Chemistry*, **57**(14), **8487-8498**, July 2018

Microdrop deposition technique: preparation and characterization of diluted suspended particulate samples

[2018]

S. Macis, G. Cibir, V. Maggi, G. Baccolo, D. Hampai, B. Delmonte, A. D'Elia and A. Marcelli, *Condensed Matter*, **3**(3), **21**, July 2018

Exploiting the Properties of Ti-Doped CVD-Grown Diamonds for the Assembling of Electrodes

[2017]

E. Tamburri, R. Carcione, F. Vitale, A. Valguarnera, S. Macis, M. Lucci, M.L. Terranova, *Advanced Materials Interfaces*, **4**(18), **1700222**, May

2017

PROCEEDINGS

The Sabina Terahertz/Infrared Beamline at SPARC-Lab Facility

[2021]

S. Macis, M. Bellaveglia, M. Cestelli Guidi, E. Chiadroni, F. Di-Pace, A. Doria, A. Ghigo, L. Giannessi, A. Giribono, A. Petralia, V. Petrillo, L. Sabbatini, C. Vaccarezza and S. Lupi, 12th Int. Particle Accelerator Conf.(IPAC21), May 2021

FEL Design Elements of SABINA: A Free Electron Laser for THz-MIR Polarized Radiation Emission

[2021]

F. Dipace, E. Chiadroni, M. Ferrario, A. Ghigo, L. Giannessi, A. Giribono, L. Sabbatini, C. Vaccarezza, A. Doria, A. Petralia, V. Petrillo, S. Lupi, S. Macis, 12th Int. Particle Accelerator Conf.(IPAC21), May 2021

Imaging local strain spatial fluctuations in superconducting BaPb_{1-x}Bi_xO₃ by scanning micro-XANES

[2018]

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, QUANTUM COMPLEX MATTER Publisher: Superstripes Press ISBN: 9788866830900, August 2018

Deposition and characterization of MoO₃ films on copper to improve accelerating technologies

[2018]

S. Macis, A. Marcelli, QUANTUM COMPLEX MATTER Publisher: Superstripes Press ISBN: 9788866830900, August 2018

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

[2017]

Z. Du, C. Xiao, A. Marcelli, G. Cibirin, G. Baccolo, S. Macis, W. Xu, A. Puri, V. Maggi, S. Liu, Y. Zhu, Markers of environmental pollution and climatic changes: European and Asian perspectives, Publisher: Superstripes Press, Rome, Italy, ISBN 9788866830771, September 2017

Mapping by scanning micro XANES (S μ XANES) of intrinsic spatial local inhomogeneity in superconducting BaPb_{1-x}Bi_xO₃

[2017]

R. Albertini, S. Macis, G. Campi, A. Ivanov, V. Ivanov, A. Marcelli and A. Bianconi, Superstripes, June 2017

Microdrop deposition technique: preparation and characterization of ultradiluted samples

[2016]

S. Macis, G. Cibirin and A. Marcelli, Atomically Controlled Surfaces, Interfaces and Nanostructures, Publisher: Superstripes Press, Rome, Italy, ISBN: 9788866830597, October 2016

Microdrop deposition for ultra-diluted samples preparation

[2015]

S. Macis, G. Cibirin and A. Marcelli, Nanoscale excitations in emergent materials; NEEM 2015, Publisher: Superstripes Press, Rome, Italy, ISBN: 9788866830450, November 2015

Oxidation processes of Fe- amphiboles at high temperature

[2015]

A. D'Elia, S. Macis, G. Cibirin, G. Della Ventura and A. Marcelli, Nanoscale excitations in emergent materials; NEEM 2015, Publisher: Superstripes Press, Rome, Italy, ISBN: 9788866830450, November 2015

BIBLIOGRAPHIC INDICATORS

Google Scholar

[10/2021]

Citation n. 143

H index: 8

N. Articles 19

Web Of Science

[10/2021]

Citation n. 104

H index: 7

N. Articles 19

ORAL CONTRIBUTIONS

Thin conducting MoO₃ films on copper for technological applications: a new route for improved RF devices

[14/02/2022 – 16/02/2022]

Symposium Quantum Materials for Quantum Technologies, QMQT, Frascati, Italy

Micro-XAS measures of the local structure changes in BaPb_{1-x}Bi_xO₃ as a function of temperature

[07/06/2021 – 09/06/2021]

QUANTUM COMPLEX MATTER 2021, Frascati-Rome, Italy

THz to UV transmission of 3D Graphene micro structures

[10/12/2019 – 11/12/2019]

[Spectroscopy and Imaging with THz Radiation using Ultimate radiation Sources, Rome, Italy](#)

THz to UV transmission of 3D Graphene micro structures

[12/10/2019 – 13/10/2019]

The 2nd Bilateral Workshop 3D Graphene, Hefei, China

Surface damage angular dependence of metallic systems by high gradient THz radiation

[17/06/2019 – 20/06/2019]

Photonics and Electromagnetic Research Symposium, PIERS 2019, Rome, Italy

Thin conducting MoO₃ films on copper. A new opportunity for technological applications

[18/06/2019 – 21/06/2019]

10th Young Researcher Meeting, Rome, Italy

Thin conducting MoO₃ films on copper for technological applications

[21/05/2019 – 25/05/2019]

54th Zakopane School of Physics, Zakopane, Poland

X-Ray characterization of thin conducting MoO₃ films on copper. A new opportunity for technological applications

[17/10/2018 – 19/10/2018]

High precision X-ray measurements, Frascati, Italy

Correlated disorder in BaPb_{1-x}Bi_xO₃ superconductor

[22/07/2018 – 27/07/2018]

X-ray Absorption Fine Structure, XAFS 2018, Kraków, Poland

POSTERS

The Sabina Terahertz/Infrared beamline at SPARC-Lab facility

IPAC 21, 25-28 May 2021, Campinas, SB, Brasil (Virtual Edition)

Thin and ultrathin conducting MoO₃ films on copper: a new route for improved RF devices

ICFDT5 2018 Conference 3-5 October 2018 INFN-LNF, Italy

High electric field breakdown on MoO₃-carbon nanotubes coating on copper for technological applications

Bilateral Workshop 3D Graphene, 1-2 October 2018 INFN-LNF & Sapienza University, Italy

Thin conductive MoO₃ films on copper technologies application: AES and XAS study of electronic and structural properties

XAFS 2018, 22-27 July 2018 Kraków, Poland

Micro-XAS measures of the local structure changes in BaPb_{1-x}Bi_xO₃ as a function of temperature

Int. Conference on Quantum Condensed Matter, QCM 2018, 11-15 June 2018, Frascati, Italy

Thin and ultrathin conducting MoO₃ films on copper for technological application: a XAS study of electronic and structural properties

QCM 2018, 11-15 June 2018 INFN-LNF, Italy

Micro-XAS measures of the local structure changes in BaPb_{1-x}Bi_xO₃ as a function of temperature

Int. Conference SUPERSTRIPES 2017, 4-10 June 2017, Ischia, Italy

Hybrid CIGS-TiO₂ thin film solar cells by sol gel method

FANO PRIZE 2016, 1 November 2016 CNR Headquarters, Rome, Italy

Local refractive index variation of FIB milled CVD diamond areas via Raman and IR micro-reflectivity

ACSIN 2016, 9-15 October 2016, Rome, Italy

Microdrop deposition technique: preparation and characterization of ultradiluted samples

ACSIN 2016, 9-15 October 2016, Rome, Italy

Oxidation processes of Fe-amphiboles at high temperature

NEEM 2015, 12-14 October 2015, Rome, Italy

Microdrop deposition for ultra-diluted samples preparation

NEEM 2015, 12-14 October 2015, Rome, Italy

WORKING EXPERIENCE ABROAD

Experiment, High electric field irradiations on MoO₃/Cu and MoO₃/Al samples

[05/2019]

Osaka University, ISIR THz FEL, Osaka, Japan.

Beamtime, RefLEXAFS study of MoO₃/Cu interface for modern accelerating devices

[10/2018]

ESRF Synchrotron, BM08 beamline, Grenoble, France.

Experiment, High electric field irradiations on MoO₃/Cu samples

[09/2018]

Osaka University, ISIR THz FEL, Osaka, Japan.

Experiment, High electric field irradiations on copper surfaces

[06/2018]

Osaka University, ISIR THz FEL, Osaka, Japan.

Beamtime, XRD studies of p-Terphenyl as a function of temperature

[07/2017]

ELETTRA Synchrotron, XRD1 beamline , Trieste, Italy.

Beamtime, Chemical activities of environmental pollutants in aerosols stored in snow and ice-core from the Western China and Arctic Atmosphere

[12/2016]

ESRF Synchrotron, BM08 beamline , Grenoble, France.

Beamtime, Probing local refractive index variation of FIB milled CVD diamond microareas via IR microreflectivity and KK transformation

[09/2016]

Diamond Synchrotron, B18 beamline, Harwell, Oxford, UK.

Beamtime, Local structure changes in BaPb_{1-x}Bi_xO₃ as a function of temperature correlated with CDW onset by dispersive XAS

[06/2016]

ESRF Synchrotron , Grenoble, France.

Beamtime, XAFS study of structural and magnetic effects induced by intercalation on Gr/Co/Ir systems

[04/2016]

ESRF Synchrotron, ID03 beamline, Grenoble, France.

Beamtime, XRF study of structural and magnetic effects induced by intercalation on Gr/Co/Ir systems

[03/2016]

ESRF Synchrotron ID03 beamline, Grenoble, France.

Training course, Multivariate IR Microspectroscopy Analysis Training Course

[11/2014]

Diamond Light Source Synchrotron, Oxfordshire, UK.

Research Thesis, Optimization of Microdrop setup and XRF measures

[07/2014 – 09/2014]

Diamond Synchrotron, B18 beamline, Harwell, Oxford, UK.

TEACHING

Assistant in Physics I, Tor Vergata Engineering faculty

[03/2019 – 06/2019]

Assistant in Physics, Tor Vergata Biology faculty

[03/2019 – 06/2019]

Assistant in Physics, Tor Vergata Biology faculty

[03/2018 – 06/2018]

Assistant in Experimental Physics 2, Tor Vergata Material Science faculty

[10/2017 – 01/2018]

Assistant in Physics, Tor Vergata Biology faculty

[03/2017 – 06/2017]

Assistant in Experimental Physics 1, Tor Vergata Material Science faculty

[10/2016 – 01/2017]

Assistant in Experimental Physics 2, Tor Vergata Material Science faculty

[10/2016 – 01/2017]

Assistant in Physics, Tor Vergata Biology faculty

[03/2016 – 06/2016]

Assistant in Experimental Physics 1, Tor Vergata Material Science faculty

[10/2015 – 01/2016]

Assistant in Data Analysis Laboratory, Roma Tre Biology faculty

[03/2014 – 06/2014]

HONOURS AND AWARDS

Research initiation grant

La Sapienza University [16/11/2021]

2K€ Research financing by the La Sapienza University "Progetti per Avvio alla Ricerca - Tipo 2" for the project "Thin films of Transition Metal Oxides for Technological Applications"

Scholarship

Roma Tre University [11/2013]

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

Scholarship

Roma Tre University [10/2013]

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

Alte scuole Roma Tre

Roma Tre University [01/2013]

School of excellence, first-year participation

Scholarship

Roma Tre University [01/2012]

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

LANGUAGE SKILLS

Mother tongue(s): **Italian**

Other language(s):

English

LISTENING C2 READING C1 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

DIGITAL SKILLS

MATLAB&Simulink / COMSOL Multi-Physics / Zemax OpticStudio / OriginPro 85 / labVIEW / MS office/Latex;
(Full proficiency, daily use)