Leonetta Baldassarre
Curriculum Vitae and Scientific Achievements

Part I – Education

Type	Year	Institution	Notes (Degree, Experience)
University graduation	2004	Università "La Sapienza" di Roma	Mark: 110/110 Thesis topic: Effect of charge ordering on the optical conductivity of Na_xCoO_2 Thesis supervisors: Prof. S. Lupi; Prof. P. Calvani
PhD	2007 Dec.	Università "La Sapienza" di Roma, Scuola di dottorato Vito Volterra Dottorato in "Scienze dei Materiali" PhD in Materials Science	Thesis Title "An infrared study on the metal to insulator transition in correlated oxides". Thesis supervisor: Prof. S. Lupi External Thesis Referee: Prof. L. Degiorgi (ETH Zurich)

Part II – Appointments

Start	End	Institution	Position
Dec 2007	Nov 2008	Augsburg Universitaet Augsburg (Germany); Chair for experimental physics 2	**Post-doctoral researcher** Position funded by two competitive grants awarded on comparative basis by the "Della Riccia" and "Bavarian Science" Foundations (reported at a subsequent point of the titles list). Research topics: Insulator to Metal transitions of strongly correlated electron systems at Extreme Conditions (High Pressure/Low Temperatures).
Dec 2008	May 2011	ELETTRA Synchrotron, Trieste (Italy)	**Post-doctoral research scientist at the synchrotron infrared beamline SISSI.** Addressed topics: -Far-Infrared Synchrotron radiation studies of the properties of correlated electron systems under external pressure with IR Synchrotron radiation. -Protein conformational changes under external pressure - Organic LED degradation. -Development of a low-temperature/high pressure setup, still in used as user facility at the infrared SISSI beam line.

L.B.

Feb 2012	Sept 2015	Istituto Italiano di Tecnologia, Center for Life NanoScience (IIT@Sapienza)	**Post-doctoral position** Planning and setup of the laboratory for "Infrared Nano-imaging". Experiments of nano-spectroscopy beyond diffraction limit. Topics: - Nano-spectroscopy of biomolecules with quantum cascade lasers; - Plasmonics in the mid-infrared; - Characterization of Silicon Photonics chips and Nano-spectroscopy in the infrared;
Oct 2015	present	Università di Roma "Sapienza", Department of Physics	**Assistant Professor (Ricercatore TD)** PI of the project "MINDS: Mid-Infrared Naonospectroscopy with Doped Semiconductors" funded by the Italian Ministry of Research under the (MIUR-S.I.R. program (Scientific Independence of Young Researchers, competitive personal grant Topics: - Plasmonics in doped semiconductors and 2D materials - Engineering of resonant scanning probes -Nano-spectroscopy of single molecular monolayers In these years, besides tutoring of two master thesis students and fourth-year laboratory students, L.B. has hired a fellow (assegno di ricerca) to work on her MINDS project.

Part IV – Fellowships, Habilitation, Society memberberships,

Year	Title
2007/2008	**Fellowship** from the "Della Riccia Foundation"
2007/2008	**Fellowship** for post-doctoral research awarded by the "Bayerische Forschungsstiftung" (Bavarian Research Foundation)
2008	**Alexander von Humboldt Fellowship** *L. Baldassarre has declined this fellowship in order to join the infrared beam line at the Elettra synchrotron in Trieste.*
2019	**IHP microelectronics "Wolfgang Mehr" Fellowship award**

Scientific Interests

During my scientific carrier, I have exploited infrared spectroscopy in different fields related to Solid State Physics and spectroscopy: from the study of low-energy electrodynamics in solids, to plasmonic approaches in the mid-infrared for nano-spectroscopy and sensing. To tackle my scientific goals, I have used conventional Fourier Transform Infrared Spectroscopy, as well as spectroscopy with Synchrotron Radiation, with Quantum Cascade Lasers and with AFM-based near-field setups.
Part of my work is aimed at infrared imaging (and spectroscopy) of biological and inorganic samples well below the diffraction limit. To this aim I use a photo-thermal based setup based on a tunable quantum cascade laser and an atomic force microscope. With this technique it has been possible to measure the natural heterogeneity of transmembrane protein conformation on individual patches of purple membrane (5 nm thick, about 10^2 protein measured). Recent work is devoted to assessing the conformational changes induced by external stimuli (i.e. visible light absorption) in photo-active transmembrane proteins.

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