

PERSONAL INFORMATION

Surname, name **Badioli, Michela**

Date of birth 01/01/1986

Place of birth Rome, Italy

WORK EXPERIENCE

<i>Dates</i>	March 2015- present
<i>Position</i>	Researcher
<i>Main activities</i>	Spectroscopy and near field microscopy in the mid-infrared.
<i>Employer</i>	IRS group, Department of Physics, Sapienza University of Rome, Italy.

<i>Dates</i>	Feb-Sept 2010
<i>Position</i>	Researcher
<i>Main activities</i>	Implementation of a FSRS setup and measurement of stimulated Raman spectra of hemoproteins.
<i>Employer</i>	Femtoscopia group, Department of Physics, Sapienza University of Rome, Italy.

<i>Dates</i>	Jan 2008-Dec 2009
<i>Position</i>	Administrative assistant (part-time)
<i>Main activities</i>	Management of the Erasmus/International office of the Physics department.
<i>Employer</i>	Faculty of Science, Sapienza University of Rome, Italy.

EDUCATION AND TRAINING

Degrees

<i>Dates</i>	Oct-2010 to Feb 2015
<i>Qualification</i>	PhD candidate in Photonics
<i>Principal subjects</i>	Title of PhD thesis “Graphene optoelectronics from the visible to the mid-infrared”, (expected defense in May/June 2015). Supervisor prof. F. Koppens. I explored different approaches to enhance the electrically tunable graphene-light interaction in a broad spectral range. This included working on efficient photodetection schemes and, on a more fundamental side, investigating the sub-wavelength interaction and energy transfer between a dipole and a graphene sheet. The expertise gained during my PhD includes clean room nanofabrication and characterization, implementation of a photocurrent setup, fluorescence and near field microscopy.
<i>Organization</i>	ICFO, Universitat Politecnica de Catalunya, Spain.

<i>Dates</i>	Oct-2007 to 21-Jan-2010
<i>Qualification</i>	Master in Physics , 110/ 110 cum laude
<i>Principal subjects</i>	Title of Master thesis “Tunable picosecond pulse generation for time-resolved Raman spectroscopy”. Supervisors: Prof. T. Scopigno (Sapienza), and prof. G. Cerullo (Politecnico di Milano). During my thesis project, which included a two months visit to Politecnico di Milano, I worked on non-linear optics, developing an essential part of the setup for time-resolved spectroscopy on hemoproteins.
<i>Organization</i>	Department of Physics, Sapienza University of Rome, Italy.

<i>Dates</i>	04-Oct-2004 to 20-Oct-2007
<i>Qualification</i>	Bachelor in Physics , 110/110 cum laude
<i>Principal subjects</i>	Title of Bachelor thesis “XRF Spectroscopy: the basis and an example of its application to the field of Cultural Heritage”. Supervisor prof. P. Dore.
<i>Organisation</i>	Department of Physics, Sapienza University of Rome, Italy.

Exchanges:

<i>Dates</i>	Jul 2102 (two weeks)
<i>Main activities</i>	Received training on a state-of-the-art dry transfer technique for graphene and other 2-dimensional materials, within a program of knowledge exchange between ICFO and MIT.
<i>Organization</i>	Quantum Nanoelectronics group, MIT, USA.

<i>Dates</i>	Jan 2102 (one week)
<i>Main activities</i>	Performed scattering type near field microscopy measurements on graphene nanoribbons to detect electrically tunable graphene plasmons.
<i>Organisation</i>	CIC nanoGUNE, San Sebastian, Spain.

<i>Dates</i>	Oct-Nov 2009
<i>Main activities</i>	Built a two-stage non-collinear optical parametric amplifier followed by a spectral compression stage from the output of a Ti:Sapphire laser. This setup was then transferred to the Femtoscopy laboratory in Rome as a part of the time-resolved FSRs experiment on heme proteins.
<i>Organisation</i>	Politecnico of Milan, Department of Physics, Milan, Italy.

<i>Dates</i>	Sept 2006 to March 2007
<i>Main activities</i>	Took part in the Erasmus study abroad program. Awarded an A-average in 6 courses on fundamental and applied physics.
<i>Organisation</i>	Queen Mary University, London, UK.

Extra-curricular courses:

- *Entrepreneurship in Photonics*, morning course and round table on start-up in the field of photonics with local and international entrepreneurs, held at ICFO, 11-Feb-2015.
- *Understanding patents in Photonics*, full-day course on intellectual property rights with applications to patents of photonic-related devices, held at ICFO by Prof. C. Puentes, co-founder of Fractus S.A., Spain, 23-Jan-2014.
- *From Science to Business*, program on scientific start-ups, held at ESADE Business School, Barcelona, Spain, May 2012 (one week).
- *Effective Oral Presentations*, course held at ICFO by Dr. J-L. Doumont from the effective communication counseling company Principiae, Belgium, Feb 2012 (three half-day sessions).

PUBLICATIONS

(Number of citations from Google Scholar)

1. K. J. Tielrooij, L. Orona*, A. Ferrier*, M. Badioli*, G. Navickaite, S. Coop, S. Nanot, B. Kalinic, T. Cesca, L. Gaudreau, Q. Ma, A. Centeno, A. Pesquera, A. Zurutuza, H. de Riedmatten, P. Goldner, F. J. Garcia de Abajo, P. Jarillo-Herrero, F. H. L. Koppens, "Electrical control of optical emitter relaxation pathways enabled by graphene". *Nature Physics*, vol. 11, 282-287, (2015). 2 citations. *equally contributing authors.
2. M. Badioli, A. Woessner, K. J. Tielrooij, S. Nanot, G. Navickaite, F. Garcia de Abajo, T. Stauber, F. H. L. Koppens, "Phonon-mediated mid-infrared photoresponse in graphene". *Nano letters*, vol 14 (11), 6374-6381, (2014). 2 citations.
3. J. Chen*, M. Badioli*, P. Alonso-Gonzalez*, S. Thongrattanasiri*, F. Huth*, J. Osmond, M. Spasenovic, A. Centeno, A. Pesquera, P. Godignon, A. Zurutuza Elorza, N. Camara, F.J. Garcia de Abajo, R. Hillenbrand, F.H.L. Koppens, "Optical nano-imaging of gate-tunable graphene plasmons", *Nature*, vol. 487 (7405), 77-81, (2012). 421 citations. *equally contributing authors.
4. G. Konstantatos, M. Badioli, L. Gaudreau, J. Osmond, M. Bernechea, F. P. Garcia de Arquer, F. Gatti, F.H.L. Koppens, "Hybrid graphene-quantum dot phototransistors with ultrahigh gain", *Nature Nanotechnology*, vol. 7 (6), 363-368, (2012). 248 citations.
5. E. Pontecorvo, S.M. Kapetanaki, M. Badioli, D. Brida and M. Marangoni, G. Cerullo, T. Scopigno, "Femtosecond stimulated Raman spectrometer in the 320-520 nm range", *Optics Express*, vol. 19, (2011). 20 citations.

FELLOWSHIPS AND AWARDS

- Travel grant to participate to IONS-KOALA conference, held in Adelaide, Australia, November 2014.
- Poster Prize at Near Field Optics (NFO) conference, held in San Sebastian, Spain, September 2012.
- Grant to participate to Graphene Week 2012, held in Delft, Netherlands, June 2012.
- ICFO grant to attend the "From Science to Business" course at ESADE, May 2012.
- FPU (Formacion del Profesorado Universitario) 4-year PhD funding scholarship from the Spanish government, 2011.
- Erasmus scholarship for the academic year 2006-2007.

SUPERVISION OF STUDENTS

As the first member of a research group that now counts more than 20 people, during my PhD I constantly trained fellow group members on graphene fabrication and characterization techniques and optoelectronic data acquisition.

I devoted particular effort on the training of two master students and one junior PhD student.

- Master student A. Woessner, currently PhD student in the NOE group, was trained on the implementation of an optoelectronic setup for measuring mid-infrared photocurrent, (during Mar-Aug 2012).
- Master student G. Navickaite, is currently a Research Engineer in the NOE group, was trained on graphene fabrication, with techniques including EBL, metal evaporation, reactive ion etching, and characterization with AFM and Raman spectroscopy, (during Mar-Aug 2012).
- PhD student I. Nikitskiy was trained on graphene fabrication, characterization and electrical measurements, (full-time Apr-May 2012).

OUTREACH ACTIVITIES

- Collaboration to the International Year of Light activities promoted by ICFO: wearable device assembling for the LED lit human towers (Castellers) show in the occasion of winter festivities in Barcelona, February 2015.
- Seminar in Spanish on "Charge and energy transfer from an optical emitter to graphene" to high school teachers, May 2014.
- Participation in the workshop JIPI 2014, meant to share research results and experiences with PhD students of different fields (from science to humanities) in the Barcelona area, January 2014.

- Showing and explaining ICFO facilities to several groups of visitors from different sectors, in English and Spanish.
- Explaining in Spanish photonics-related topics to high school students within the program “Dia de la Luz”, March 2012.

LANGUAGES

Italian	Native			
	<i>Understanding</i>	<i>Speaking</i>	<i>Writing</i>	
English	C2	C2	C2	<i>Cambridge CPE (2010)</i>
Spanish	C2	C1	C1	<i>Self-assessment</i>
Catalan	B1	A2	A2	<i>Self-assessment</i>

European levels from the Common European Framework of Reference for Languages.

CONFERENCES AND SEMINARS

Oral presentations

- **IONS-KOALA 2014**, University of Adelaide, Adelaide, Australia, (Nov 2014), *Graphene-mediated electrical control of energy flow from an emitter*.
- **International conference on diamond and carbon materials**, Melia Castilla, Madrid, Spain, (Sept 2014), *Phonon-mediated mid-infrared photoresponse in graphene*.
- **Plasmonica 2014**, Sapienza University, Rome, Italy (July 2014). *Graphene-mediated electrical control of energy flow from an optical emitter*.
- **JIPI 2014**, Universidad de Barcelona, Spain (Feb 2014). *Manipulating light with graphene*.
- **Plasmonica 2013**, Politecnico di Milano, Italy (Jul 2013). *Optical nano-imaging of gate-tunable graphene plasmons*.
- **ICONS seminar**, ICFO (The Institute of Photonic Science), Castelldefels (Barcelona), Spain (Jan 2013). *Coupling between graphene and nearby emitters: efficient photodetection and tunable plasmons*.
- **International Symposium on Graphene Devices**, Synchrotron SOLEIL, Sant-Aubin, France (Nov 2012). *Optical nano-imaging of gate-tunable graphene plasmons*.

Poster presentations

- Corporate Liason Day 2013, ICFO, Castelldefels (Barcelona), Spain (Nov 2013).
- Graphene Nanophotonics, Benasque, Spain (Mar 2013).
- MediNano5 ICFO, Castelldefels (Barcelona), Spain (Nov 2012).
- Corporate Liason Day 2012, ICFO, Castelldefels (Barcelona), Spain (Sep 2012).
- Near Field Optics NFO 2012, San Sebastian, Spain (Sep 2012).
- Graphene Week, Delft, Holland (Jun 2012).
- Nanolight 2012, Benasque, Spain (Mar 2012).