

## CURRICULUM VITÆ

### Personal Information

Name: **Marco**  
Family name: **Lazzarino**  
Date of birth: **18-April-1966**  
Place of birth: **Savona (Italy)**  
Home address: **Via Carpaccio, 6 I-34143 Trieste (Italy)**

Work address: **IOM-CNR, Laboratorio TASC**  
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### Education and Professional position

**2012. PhD in Mathematics and Natural Science.** University of Gröningen (NL)

**1991. Laurea in Physics.** University of Genoa (IT)

#### **08.Nov.2010 – Today**

Senior Scientist – Primo tecnologo – at IOM-CNR Trieste.

#### **01.dec. 1998 – 07.nov. 2010**

Scientist – Tecnologo – at TASC-INFN, Trieste.

#### **07.Jan.1998 – 30.Nov.1998**

"Funzionario tecnico di VIII livello" at Laboratorio G. Polvani, Scuola Normale Superiore. Pisa

#### **15.Mar.1995 – 31.Dec.1997**

INFN Fellowship of Laboratorio TASC-INFN, Trieste.

#### **15 Sep.1992 – 14.Mar.1995**

Fellowship "Piano Nazionale per la Bioelettronica" at Technobiochip – Marciana Marina (LI)

#### **Jul. – Aug. 2003**

Visiting scientist, Princeton University, Princeton NJ

#### **Jul. – Aug. 2014**

Visiting scientist, Molecular Foundry – LBNL – Berkeley CA

#### **Nov. – Dec 2014**

Visiting scientist, Molecular Foundry – LBNL – Berkeley CA

#### **Jun. – Jul. 2015**

Visiting scientist, Molecular Foundry – LBNL – Berkeley CA

#### **Aug 2018 – Feb 2019**

Visiting scientist. UC Denver – Anschutz Medical Campus. Denver CO

### Scientific expertise

#### Technical experience

##### **Vacuum and surface science:**

Auger Electron Spectroscopy (AES), Low Energy Electron Diffraction (LEED), High Resolution Electron Energy Loss Spectroscopy (HREEL) X-ray Photoemission spectroscopy (XPS) and synchrotron radiation X-ray Photoemission spectroscopy and microscopy.

##### **Processing:**

UV, Electron beam and AFM lithography, chemical etching and reactive ion etching, e-beam evaporation of metals and superconductors, PECVD of insulators, Silicon micromachining and MEMS fabrication.

##### **Characterization:**

optical spectroscopy (photoluminescence, absorption, Raman), microscopy (SEM, AFM, SNOM ) transport (current - voltage, capacitance - voltage and differential conductance - voltage measurements), Frequency characterization of MEMS.

##### **Software:**

data acquisition (Labview); data analysis (Igor, Origin); finite element analysis (Comsol)

## Scientific interests:

Former fields of interest included superconductor/semiconductor interfaces and devices, electronic properties of high mobility 2-dimensional electron gas, integer and fractional quantum hall effect, AFM lithography, dielectric materials.

Present field of interest are micro and nanoelectromechanical systems for the detection and manipulation of small biological entities and the application of scanning probe microscopy to biology. In detail:

- Design, fabrication and functionalization of MEMS sensors.
- Atomic Force microscopy for biology: imaging and force spectroscopy
- Plasmonics and enhanced Raman spectroscopy.
- DNA origami and DNA origami plasmonics.
- Single cell force spectroscopy and mechanobiology.

## Publications

122 publications on international journals. *h*-index 22 (scopus), 26 (google scholar)  
3 book chapters

## Invitations to international conferences, workshops and schools

- 2009 – Super and High Resolution Imaging – Lipica (SLO): *Tip-assisted Raman Spectroscopy*
- 2011 – Conference on Nanotechnology for Biological and Biomedical Applications – Trieste (I): *MEMS based microstrategies for single cell proteomics*
- 2012 – NanoTurkey 8 – Ankara (TUR): *Single molecule detection: an FP7 project*
- 2013 – Second Conference on Nanotechnology for Biological and Biomedical Applications – Trieste (I): *Single cell force spectroscopy*
- 2013 – Meeting of the South African Institute of Physics – Richards Bay (ZA): *Nanomechanical sensing for biology and medicine*
- 2013 – SAIP Winter School: Richards bay (ZA): *Application of Microscopy and nano-lithography with synchrotron radiation.*
- 2014 – Linzer Winter workshop - Advances in Single-Molecule Research for Biology & Nanoscience – Linz (A): *Single molecule force spectroscopy of CNGA1 channels “in situ” reveals major conformational changes upon gating*
- 2014 – SISSA Summer school “From Electrophysiology to Imaging and BioNanotechnology – Trieste (I)
- 2014 – 11th international workshop on nanomechanical sensing – Madrid (E): *Fast detection of biomolecules in diffusion - limited regime using micromechanical pillars*
- 2015 – SISSA Summer school From Electrophysiology to Imaging and BioNanotechnology – Trieste (I)
- 2016 – SISSA Summer school From Electrophysiology to Imaging and BioNanotechnology – Trieste (I)
- 2016 – Medinano-8, Athens (GR): *Nanoplasmonic and hot-spot tuning for SERS applications*
- 2016 – SPM workshop of the Royal Microscopy Soc. Warwick (UK): *SPM-based force spectroscopy to investigate the mechanics of phototransduction and mechanotransduction processes*
- 2017 – SISSA Summer school “From Electrophysiology to Imaging and BioNanotechnology – Trieste (I)

## Projects and management

### Development of Instrumentation

- Design and realization of a cryostat and a set up for low temperature four probes transport measurement.
- Design and realization of a cryostat for low temperature optical measurement.
- Project of gas distribution-line for a PECVD system.
- Design and realization of a SNOM system operating at low temperature and in high magnetic field.
- Design and realization of a set-up for anodic bonding of silicon wafers.
- Design and realization of several set up for the measurement of the resonance frequency of MEMS.
- Design and realization of several set up for the design of Tip Enhanced Raman Spectroscopy.

### Research projects and fundings

- 2001 – 2003 Project Leader; regional funding agency “Fondo Trieste”; project “MagSNOM-near field optical microscopy at low temperature and high magnetic field” . Project budget 304 k€
- 2004 – 2005 Project leader; INFM-Ponte - HiPPY- Micromachined High Pressure Pumps for Hydrodynamics. The project budget was 15.5 k€.
- 2009 – 2012 CNR Unit coordinator for the FP7 project SMD – Single Molecule Detection – Unit budget 276 k€
- 2011 – 2013 CNR Unit coordinator for the FP7 Project FOCUS – Unit budget 200 k€
- 2011 – 2014 CNR Unit coordinator for the the Italian AIRC project “5permille”: Application of Advanced nanotechnology in the Development of innovative Cancer Diagnostic Tools.– Unit budget 676k€
- 2012 – 2013 CNR Unit coordinator for the FP7 Project FOCUS – Unit budget 76 k€
- 2012 – 2016 CNR Unit coordinator for the the Italian FIRB project “accordi di programma” : Approcci nanotecnologici per la teragnostica dei tumori – Unit budget 260 k€
- 2014 – 2015 Project leader in the Bilateral project CNR and TUBITAK (Turkey) - FREMORS – travel costs only
- 2014 CNR - Short Term Mobility program 2014 – POWER – travel costs only
- 2014 – 2017 CNR Unit coordinator for the MISA – Bando Ricerca finalizzata 2011 - “application of ultrastructural cell analysis in the field of reproductive technologies” – Unit budget - 50 k€
- 2015 CNR - Short Term Mobility program 2015 – POWER – travel costs only
- 2016 – 2017 Project leader in the bilateral project CNR and TUBITAK (Turkey) - FORMERS – Unit Budget 6 k€
- 2016 – 2017 Project leader for the Area Science Park , Proof of Concept Network (PoCN) project Bac-Pro total budget 19 k€
- 2016 – 2017 Project leader for the Area Science Park , Proof of Concept Network (PoCN), project Opt-Act total budget 19 k€
- 2017 – 2018 CNR Unit coordinator, POR-FESR project *Antibiotica* – Unit budget 194 k€
- 2017 – 2020 Project Leader; regione FVG, LR 17/2014; progetto Biomec – Total budget 199 k€
- 2018 Project leader for the Area Science Park , Made in Trieste, project MASSIVE - *Mechanical Assisted oocyte Sorting for In Vitro fertilization*: total budget 26 k€
- 2018 CNR - Short Term Mobility program 2018 – *Nanomechanical investigation of cell-cell adhesion properties* – travel costs only
- 2018 - 2019 CNR Unit coordinator, MIUR-Premiale project OPEN-LAB – Unit budget 254 k€
- 2019 – 2020 Project leader, EU-H2020 Attract program, Lump sum project “Grant” – Total budget 100k€
- 2019 – 2022 Project leader, EU-H2020 Interreg ITA-SLO project *NanoRegion* – Total budget 3.5M€ (Unit budget 750k€)

**Overall research budget obtained through competitive research grant 3,424,000 €**

#### **Facility access proposal (accepted)**

- 2014 #3376, “Movable AuNP by Tunable Origami for controlled Raman Enhancement. (MoTOR)”  
(Molecular Foundry – LBNL Berkeley CA)
- 2014-#3103, “Pillars on Waveguides: Excitation and Read-out (PoWER)”  
(Molecular Foundry – LBNL Berkeley CA)
- 2011-5-412 AFM and IR microspectroscopy: toward a quantitative methodology for single cell analysis.  
(Elettra)
- 2011-0-257 Electronic structure of DNA in liquid environment by X-ray spectroscopy  
(Elettra)
- 2008-5-363 Cycloaddition reactions of organic molecules on freshly cleaved atomically flat Si(111) Surface  
(Elettra)
- 2005-452 Surface segregation of p-type dopant in InP nanowires  
(Elettra)
- 2003-697 Photoemission study of chemically controlled AFM nano-oxidation  
(Elettra)
- 2002-134 GaAs local anodic oxidation study by spectroscopic microscopy.  
(Elettra)
- 1999-088 Device nanofabrication optimisation by Spectromicroscopy  
(Elettra)

#### **Responsibilities and Appointments**

2003 – 2016 INFM-TASC, and later at IOM-CNR: in charge of the processing facility, including PECVD, e-beam evaporation, RIE, Optical lithography, AFM, clean-room environment, until the establishment of the Facility of Nanofabrication.

2016 – today board of director for the Facility of Nanofabrication. (FNF)

2012 – 2016 member of the IOM-CNR consiglio di istituto

#### **Commercial partners for services and commercial activities.**

3B S.p.A. (Salgareda - TV)  
Alifax S.p.A. Nimis (UD)  
APERRESEARCH S.r.l. (Trieste)  
Elettra – Sincrotrone Trieste ScpA (Trieste)  
HOLO3D S.r.l. (Trieste)  
Scuola Internazionale di Studi Superiori Avanzati (SISSA), Trieste  
SOLVAY S.p.A. (Bollate – MI)  
Università di Trieste – Dipartimento di Ingegneria dei materiali.  
Università di Udine - Dipartimento di Scienze Mediche e Biologiche.  
UTRI S.r.l (Trieste)

### Other professional activities

#### 2003 – today

R&D consultant at A.P.E. Research S.r.l., Trieste

#### 2006 – 2013

Consultant as director of an AFM facility at C.B.M. S.c.a.r.l., Trieste

#### 2010 – 2018

Sale consultant for AFM products at Biofotonica S.r.l., Roma

### Academic appointments

#### 26.Nov.2009 – today

Faculty member of the PhD school in nanotechnology of the University of Trieste

#### 01.Oct.2013 – 2018

Faculty member of the PhD school in neurobiology of the SISSA of Trieste

#### 1.Oct.2014 – today

Adjunct professor at University of Trieste in nanobiotechnology – master in biotechnology

#### 1.Oct.2017 – today

Adjunct professor at University of Trieste in Experimental Biophysics – master in physics

### Teaching

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- June 2005 Università della Magna Grecia - Catanzaro  
Nanotechnologies for medicine - laurea ingegneria biomedica e bioinformatica (8 hours).
- November – December 2005 University of Trieste  
materials for nanoelectronics and nanophotonics - PhD in Physics (6 hours)
- March 2006 – University of Trieste  
Nanotechnologies and nanomicroscopies - laurea specialistica in Biotecnologie – indirizzo nanotecnologie (10 hours)
- June 2006 Università della Magna Grecia - Catanzaro  
Nanotechnologies for medicine - laurea ingegneria biomedica e bioinformatica (8 hours).
- October – November 2006 University of Trieste  
materials for nanoelectronics and nanophotonics - PhD in Physics (6 hours)
- November – December 2006 University of Trieste  
Laboratorio di Fisica della materia A – Microelectromechanical systems (50 hours) – laurea specialistica in Fisica
- May 2007 – University of Trieste  
Nanotechnologies and nanomicroscopies - laurea specialistica in Biotecnologie – indirizzo nanotecnologie (12 hours)
- November 2007 – University of Trieste  
Microscopy in biology- laurea specialistica in Biotecnologie indirizzo biotecnologie mediche (8 hours)
- January – March 2009 – University of Trieste  
Elements of microscopy- laurea triennale e specialistica in Biotecnologie (16 hours)
- January 2013 – SISSA  
AFM microscopy – PhD in neurobiology (10 hours)
- November 2013 – University of Perugia  
Progettazione di Biosensori– corso di specializzazione post laurea per “Esperto in applicazioni tecnologiche di biosensori e di micro e nano sistemi” (5 hours)
- January 2014 – SISSA  
AFM microscopy – PhD in neurobiology (10 hours)
- July 2014 – SISSA  
AFM force spectroscopy – 4th neurobiology summer school (4 hours)

- September 2014 – January 2015 - University of Trieste  
Nanobiotechnologie B – corso di laurea in biotecnologie (48 hours)
- January 2015 – SISSA  
AFM microscopy – PhD in neurobiology (10 hours)
- July 2015 – SISSA  
AFM force spectroscopy – 5th neurobiology summer school (8 hours)
- September 2016 – December 2016 – University of Trieste  
Nanobiotechnologie B – corso di laurea in biotecnologie (48 hours)
- January 2017 – SISSA  
AFM microscopy – PhD in neurobiology (8 hours)
- September 2017 – December 2017 – University of Trieste  
Tecniche avanzate di indagine microscopica – corso di laurea in biotecnologie (48 hours)
- September 2017 – December 2017 – University of Trieste  
Biofisica Sperimentale – corso di laurea in Fisica (24 hours)
- September 2018 – December 2018 – University of Trieste  
Tecniche avanzate di indagine microscopica – corso di laurea in biotecnologie (48 hours)

## Thesis supervision

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### Laurea thesis

2001 – Master in Material engineering - University of Trieste

**Paola Machetta** – FILM SOTTILI DI PTFE COME ISOLANTI PER L'INDUSTRIA MICROELETTRONICA –

2001 – Master in Physics - University of Trieste

**Giorgio Mori** – FABBRICAZIONE DI NANOSTRUTTURE SU GAS ELETTRONICI BIDIMENSIONALI MEDIANTE MICROSCOPIA A FORZA ATOMICA

2002 – Master in Material engineering - University of Modena

**Monica Montecchi** – STUDIO DI TECNICHE INNOVATIVE DI ANODIC BONDING PER LA FABBRICAZIONE DI SISTEMI MICROELETTROMECCANICI

2005 – Master in Material engineering - University of Trieste

**Elena de Marchi** – TWIN CANTILEVERS: UN SISTEMA INNOVATIVO PER LA RIVELAZIONE DELL'IBRIDIZZAZIONE DEL DNA SU SINGOLA MOLECOLA

2006 – Master in Electronic engineering - University of Trieste

**Giulio Grassi** - DISPOSITIVI OPTOELETTRONICI A SINGOLO NANOFILO: MISURE DI FOTOCORRENTE IN CAMPO PROSSIMO

2006 – Master in Electronic engineering - University of Trieste

**Davide Nonis** – SVILUPPO DI SENSORI MEMS PER LA RIVELAZIONE DI SINGOLE MOLECOLE.

2007 – Diploma in Physics - University of Trieste

**Damiano Cassese** - PROGETTAZIONE E REALIZZAZIONE DI UN ATTUATORE CAPACITIVO PER LA MANIPOLAZIONE DI NANOSTRUTTURE.

2007 – Diploma in electronic engineering - University of Trieste

**Valeria Toffoli** – FUNZIONALIZZAZIONE DI SISTEMI MICROELETTROMECCANICI PER L'ANALISI MOLECOLARE

2008 – Master in Biotechnology - University of Trieste

**Elisa Migliorini** - AFM AS A NANOTECHNOLOGICAL TOOL TO INVESTIGATE AT NANOSCALE GROWTH CONES AND FILOPODIA IN EMBRYONIC STEM CELLS-DERIVED NEURONS

2010 – Master in Electronic engineering - - University of Trieste

**Valeria Toffoli** – PROGETTAZIONE E REALIZZAZIONE DI UN SISTEMA DI ANALISI TERMOGRAVIMETRICA IN TECNOLOGIA MEMS

2010 – Master in Physics - - University of Trieste

**Damiano Cassese** – RISCALDATORE AD ORO ULTRAPIATTO PER LO STUDIO DELLE REAZIONI CHIMICHE ALLA NANOSCALA.

2011 – Master in Biotechnology - - University of Trieste

**Luca Piantanida** - A DNA ORIGAMI NANOVALVE FOR BIOSENSING

2012 – master in biotechnology - University of Perugia

**Enrica Borgo**, SYNTHESIS AND DEVELOPMENT OF GOLD NANOPARTICLES FOR THE FORMATION OF A "SANDWICH ASSAY" OF NANOELECTROMECHANICAL SYSTEMS.

2013 – Diploma in physics - University of Trieste

**Anna Murello** – STUDIO IN VIVO DELLE FORZE DI ADESIONE TRA CELLULE E SUBSTRATI NANOSTRUTTURATI

2017 – Diploma in Electronic Engineering - University of Trieste

**Daniele Fingolo** – SVILUPPO DEL SOFTWARE DI ACQUISIZIONE DATI DI UN SISTEMA SPERIMENTALE PER LA RILEVAZIONE DELLA RESISTENZA BATTERICA AGLI ANTIBIOTICI UTILIZZANDO CANTILEVERS PER AFM COME SENSORI NANOMECCANICI

2017 – Master in Functional Genomics - University of Trieste

**Domenico Tierno** - STUDIO DELLE PROPRIETÀ MECCANICHE DI MICROSFERE TUMORALI

2019 - Master in Biotechnology - University of Trieste

**Michele Zanetti** - DESIGN AND DEVELOPMENT OF A NON-INVASIVE STRATEGY TO INVESTIGATE THE VISCOELASTIC PROPERTIES OF MAMMALIAN OOCYTES, IN THE FRAMEWORK OF ASSISTED REPRODUCTIVE TECHNOLOGY.

2019 - Master in Biotechnology - University of Trieste

**Tomaz Bembi** - FABBRICAZIONE DI SUBSTRATI CON MICROSTRUTTURE PER L'ALLINEAMENTO E LA CRESCITA DI PRECURSORI NEURONALI DA NEONATI DI OPOSSUM

### Phd Thesis

2010 – PhD @ SISSA

**Mauro Melli** - MECHANICAL RESONATING DEVICES AND THEIR APPLICATIONS IN BIOMOLECULAR STUDIES

2012 – PhD @ University of Trieste – School in Nanotechnology

**Elisa Migliorini** - NANOSTRUCTURED SUBSTRATES TO CONTROL THE EMBRYONIC STEM CELLS DIFFERENTIATION INTO NEURONAL LINEAGE

2012 – PhD @ University of Trieste – School in Nanotechnology

**Hossein Pakdast** - ADVANCED MEMS RESONATOR FOR MASS DETECTION AND MICROMECHANICAL TRANSISTOR

2014 – PhD @ University of Trieste – PhD in information engineering

**Valeria Toffoli** – SUPERHYDROPHOBIC BIOMEMS SENSOR ARRAYS: DEVELOPMENT AND ACTUATION AND READ-OUT ELECTRONIC STRATEGIES

2015 – PhD @ University of Trieste – School in Nanotechnology

**Daniele Borin** – MICROMECHANICAL OSCILLATOR FOR BIOCHEMICAL APPLICATIONS

2015 – PhD @ University of Trieste – School in Nanotechnology

**Damiano Cassese** – TIP ENHANCED RAMAN SCATTERING PROBES BASED ON SEMICONDUCTOR NANOWIRES

2015 – PhD @ University of Trieste – School in Nanotechnology

**Luca Piantanida** - DNA ORIGAMI ACTUATION AS A POWERFUL DYNAMIC AND TUNABLE ARCHITECTURE FOR PLASMONIC STRUCTURE

2016 – PhD @ university of Udine – school of Medicine

**Martina Tardivo** - A MEMS (MICRO ELECTRO MECHANICAL SYSTEMS) APPROACH TO HIGHLY SENSITIVE MULTIPLEXED BIOSENSORS

2017 – PhD @ University of Trieste – School in Nanotechnology

**Alessia Matruggio** - SINGLE-LAYER GRAPHENE FOR BIOLOGY AND CHEMISTRY: FABRICATION AND APPLICATIONS

2018 – PhD @ University of Trieste – School in Nanotechnology

**Silvio Greco** - NANOOPTOMECHANICAL SILICON DEVICES FOR SENSING APPLICATIONS

2018 – PhD @ University of Trieste – School in Nanotechnology

**Valentina Masciotti** - DESIGN OF AN ENVIRONMENT-INDIPENDENT, TUNABLE 3D DNA-ORIGAMI PLASMONIC SENSOR

#### **ICTP TRILL formation**

18.Jan.2006 – 18.Oct.2006 **Aneeqe Qazi** – University of Islamabad, Pakistan

17.Oct.2012 – 16.Oct.2013 **Srinivas Babu Patcha** - K L University, Vaddeswaram, Vijayawada, Andhra Pradesh, INDIA

#### **ICTP Diploma thesis**

01.Jun.2009 – 31.Aug.2009 **Gebremichalel Bizuneh Difer** – University of Addis Ababa: Surface Stress effect in the self assembly of DNA monolayer on micro cantilevers

#### **Visiting students**

18.Apr.2012 – 17.Oct.2012 **Shahid Mehmmod** – Pakistan High Education Commission fellow and CIIT Islamabad Pakistan

03 Jul. 2017 - 02.Oct.2017 **Odeta Taujanskaitė** – Erasmus+ Traineeships - EU

04. Apr.2018 – 03.Oct.2018 **Aleksandra Makowiec**a – ETIUDA fellowship from National Science Centre (NCN)- Krakow - PL

Trieste 20/01/2020

Marco Lazzarino



## LIST OF PUBLICATION ON PEER REVIEWED JOURNALS

1. Masciotti, V., Piantanida, L., Naumenko, D., Amenitsch, H., Fanetti, M., Valant, M., Lei, D., Ren, G., Lazzarino, M. A DNA origami plasmonic sensor with environment-independent read-out. *Nano Research*, **2019** 12, pp. 2900-2907.
2. Giolo, E., Martinelli, M., Luppi, S., Romano, F., Ricci, G., Lazzarino, M., Andolfi, L. Study of the mechanical properties of fresh and cryopreserved individual human oocytes. *European Biophysics Journal*, **2019** 48, pp. 585-592.
3. Andolfi, L., Greco, S.L.M., Tierno, D., Chignola, R., Martinelli, M., Giolo, E., Luppi, S., Delfino, I., Zanetti, M., Battistella, A., Baldini, G., Ricci, G., Lazzarino, M. Planar AFM macro-probes to study the biomechanical properties of large cells and 3D cell spheroids. *Acta Biomaterialia*, **2019** 94, pp. 505-513.
4. Nappini, S., Bondino, F., Píš, I., Chelleri, R., Greco, S.L., Lazzarino, M., Magnano, E. Chemical composition and interaction strength of two-dimensional boron-nitrogen-carbon heterostructures driven by polycrystalline metallic surfaces. *Appl. Surf. Sci.*, **2019** 479, pp. 903-913.
5. Xiao, M., Li, X., Song, Q., Zhang, Q., Lazzarino, M., Cheng, G., Ulloa Severino, F.P., Torre, V. A Fully 3D Interconnected Graphene–Carbon Nanotube Web Allows the Study of Glioma Infiltration in Bioengineered 3D Cortex-Like Networks (2018) *Adv. Materials*, **2018** 30, art. no. 1806132, .
6. Greco, S., Giglia, A., Malvezzi, M., Nannarone, S., Dalzilio, S., Lazzarino, M. Microfabricated wire scanner for photon beam characterization. *J. of Instrumentation*, **2018** 13 art. no. C03037,
7. SML Greco, S. Dal Zilio, A. Bek, M. Lazzarino and D. Naumenko Frequency Modulated Raman Spectroscopy *ACS Photonics*, **2018**, 5, 312
8. Masciotti, V., Naumenko, D., Lazzarino, M., Piantanida, L. Tuning gold nanoparticles plasmonic properties by DNA nanotechnology. *Methods in Molecular Biology*, **2018** 1811, pp. 279-297.
9. M. Veronese, S. Grulja, G. Penco, m. Ferianis, L. Frohlich, S. Dal Zilio, S. Greco and M. Lazzarino. A nanofabricated wirescanner with free standing wires: Design, fabrication and experimental results. *Nucl. Instr. Meth. A* **2018**, 891, 32
10. S. Nappini, A. Matruggio, D. Naumenko, S. Dal Zilio, M. Lazzarino, FMF De Groot, C. Kocabas, O. Balci and E. Magnano, Graphene Nanoreactors: Photoreduction of Prussian Blue in Aqueous Solution. *Journal of Physical Chemistry C*, **2017** 121, 22225
11. Gianoncelli, G. Kourousias, F. Cammisuli, D. Cassese, C. Rizzardi, O. Radillo, M. Lazzarino and L. Pascolo. Combined use of AFM and soft X-ray microscopi to reveal fibres internalization in mesothelial cells. *Analyst*, **2017**, 142, 1982
12. S. Nappini, A. Matruggio, D. Naumenko, S. Dal Zilio, F. Bondino, M. Lazzarino and E. Magnano. Graphene nanobubbles on TiO<sub>2</sub> for in-operando electron spectroscopy of liquid-phase chemistry. *Nanoscale*, **2017**, 9, 4456
13. Andolfi L., Murello A., Cassese D., Ban J., Dal Zilio S. and Lazzarino M. High aspect ratio silicon nanowires control fibroblast adhesion and cytoskeleton organization. *Nanotechnology* **2017** 28 155102
14. Shane J Morley *et al.* Acetylated tubulin is essential for touch sensation in mice. *eLife* **2016**; 5:e20813. DOI: 10.7554/eLife.20813
15. Mincigrucci R., Matruggio A., Calvi A., Foglia L., Principi E., Simoncig A., Bencivenga F., Dallorto S., Gessini A., Kurdi G., Olynick D., Dhuey S., Sergio R., Lazzarino M., Masciovecchio C. and Dal Zilio S. Toward an integrated device for spatiotemporal superposition of free-electron lasers and laser pulses. *Optics Letters* **2016**. 41, 5090-5093
16. Naumenko N., Toffoli V., Greco S., Dal Zilio S., Bek A. and Lazzarino M. A micromechanical switchable hot spot for SERS applications. *Appl. Phys. Lett.* **2016** 109, 131108



17. Andolfi L., Masiero E., Giolo E., Martinelli M., Luppi S., Dal Zilio S., Delfino I., Bortul R., Zweyer M., Ricci G. and Lazzarino M. Investigating the mechanical properties of zona pellucida of whole human oocytes by atomic force spectroscopy. *Integr. Biol.*, **2016**, 8, 886
18. Tasgin, M.E., Salakhutdinov, I., Kendziora, D., Abak, M.K., Turkpence, D., Piantanida, L., Fruk, L., Lazzarino, M., Bek, A. Fluorescence excitation by enhanced plasmon upconversion under continuous wave illumination. *Photonics and Nanostructures - Fundamentals and Applications*, **2016** 21, 32-43.
19. Matruggio, A., Nappini, S., Naumenko, D., Magnano, E., Bondino, F., Lazzarino, M., Dal Zilio, S. Contamination-free suspended graphene structures by a Ti-based transfer method. *Carbon*, **2016** 103, 305-310.
20. Matruggio, A., Dal Zilio, S., Sergo, R., Mincigrucchi, R., Svetina, C., Principi, E., Mahne, N., Raimondi, L., Turchet, A., Masciovecchio, C., Lazzarino, M., Cautero, G., Zangrando, M. A novel approach in the free-electron laser diagnosis based on a pixelated phosphor detector. *Journal of Synchrotron Radiation*, **2016**, 23, 29-34
21. Naumenko, D., Stolzer, L., Quick, A.S., Abt, D., Wegener, M., Barner-Kowollik, C., Zilio, S.D., Marmioli, B., Amenitsch, H., Fruk, L., Lazzarino, M. Design of broadband SERS substrates by the laser-induced aggregation of gold nanoparticles. *J. of Mat. Chem. C*, **2016** 4 6152-6159
22. Tardivo, M., Toffoli, V., Fracasso, G., Borin, D., Dal Zilio, S., Colusso, A., Carrato, S., Scoles, G., Meneghetti, M., Colombatti, M., Lazzarino, M. Parallel optical read-out of micromechanical pillars applied to prostate specific membrane antigen detection. *Biosensors and Bioelectronics* **2015**, 72, 393-399.
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