

## CURRICULUM VITAE

Francesco Saverio Pavone  
Orcid ID number: 0000-0002-0675-3981  
Department of Physics, University of Florence  
European Laboratory for Non-Linear Spectroscopy (LENS)  
National Institute of Optics (INO-CNR)  
Phone: +39.055.4572480  
e-mail: [francesco.pavone@unifi.it](mailto:francesco.pavone@unifi.it)

### Biosketch

Francesco Saverio Pavone was born in Bari the 23th March 1962. In 1989 he obtained his Laurea degree in Physics at the University of Florence. In 1990 he became Research Officer at the European Laboratory for Non-Linear Spectroscopy (University of Florence). In 1993 he obtained a Master in Optics at the National Institute for Optics (Florence, Italy). In 1997 he spent one year and half as "Maitre de Conférences Associe au College de France", Paris, with experimental work at the "Ecole Normale Superieure" (ENS) of Paris with Prof. Claude Cohen-Tannoudji (1997 Nobel prize in Physics). In 1998 he became associate Professor of physics at the department of physics of the University of Perugia, Italy and Scientific director of the section of Atomic and Molecular Physics at the European Laboratory for Non-Linear Spectroscopy (LENS), Florence, Italy. In 2001 he moved as associate professor to the University of Florence (Dept. of Physics) and became scientific responsible of the Biophotonics Area at LENS (Florence, Italy). In 2005 he became Full Professor of Physics of the Matter at the Department of Physics and Astronomy, University of Florence. He was Director of LENS from Dec 2013 until Dec 2019. He is currently area manager at LENS and president of the Museum Science Galileo in Florence.

As scientific experience, from 1990 to 1995 he worked in the field of Atomic and molecular spectroscopy. From 1995 to 1999 he worked in the field of Atomic physics, and since 1999 in Biophysics. Currently he is directing a research group of more than 50 people working in the field of biophotonics, in particular on microscopy, biomedical imaging, image analysis, data management and machine learning.

Pavone is authors of more than 250 international papers and editor of international books. He has more than 150 invited talk and he is editor of several international journals. He's unit coordinator of International, European and national projects and obtained an Advanced Grant of European Research Council (ERC BrainBIT, 2016-2021) , an associated ERC Proof-Of-Concept (POC) and a NIH grant in the framework of the Brain Initiative (NIH BICCN U01MH117023, 2018-2023). He is the Italian node leader of the infrastructure EBRAIN and the italian delegate in the Board of Directors of the infrastructure EurobioImaging. He has organized several international congresses. He is in the evaluation panel of the European Research Council (PE3) and the DFG (Germany), fellow of SPIE, AIMBE and OSA. He has an *h-index* equal to 54 (Google scholar). Finally, Pavone is founder of companies Light4tech ([www.l4t.it](http://www.l4t.it)) in 2005 and Emoled ([www.emoled.com](http://www.emoled.com)) in 2016, and author of some patents.

### Current Positions

- 2000- Head of Biophysics Area, European Laboratory for Non-Linear Spectroscopy (LENS), University of Florence, Italy
- 2006- Full Professor of Physics of the Matter, Department of Physics and Astronomy, University of Florence, Italy
- 2017- Member of the National Commission for the evaluation of the "abilitazione nazionale" in experimental physics of Matter
- 2018- Member of Board of Directors of Campus Bio-Medico University of Rome
- 2019- President of the "Museo Galileo", Florence, Italy

### Previous Positions

- 1991-1997 Researcher officer, University of Florence  
1997-1998 Maitre de Conférences Associé au Collège de France (within the Scholarship College de France assigned to Claude Cohen Tannoudji, Nobel prize 1997), experimental work at the Ecole Normale Supérieure (ENS), Paris, France  
1998-2001 Associate Professor in Physics of the Matter, Department of Physics and Astronomy, University of Perugia, Italy  
2001-2006 Associate Professor in Physics of the Matter, Department of Physics and Astronomy, University of Florence, Italy  
2013-2019 Director of the European Laboratory for Non-Linear Spectroscopy (LENS), University of Florence, Italy  
2016-2019 President of HBP Italy (*Human Brain Project* European Flagship)  
2014-2020 Member of the Board of Director of the “Human Brain Project” Initiative

### Education

- 1989 Master Degree in Physics, University of Florence, Italy  
1990-1993 Post graduate specialization in Optics, National Institute of Optics, Florence, Italy  
2016 Certificate for animal experimentation (Felasa B equivalent), UNIL D’Origny, Geneva, Switzerland

### Fellowships and Awards

- 2012 First prize, “Best Innovation by a Multilateral project, organisation or Company”, European Photonics Innovation, Innovation village at Photonics Europe, Brussels.  
2016 European Research Council Advanced Grant winner (“Brainbit”)  
2016 Fellow member of SPIE (International Society for Optics and Photonics)  
2016 Elected for the Class of the College of Fellows of the American Institute for Medical and Biological Engineering (AIMBE)  
2018 Fellow member of OSA (The Optical Society of America)  
2020 European Research Council Proof Of Concept winner (“DAPTOMIC”)  
2021 Fellow member of OPTICA

### Teaching Activities

- 1998–2001 Basic Physics, Biotechnology Classes– University of Perugia, Italy  
2001- Basic Physics, Biotechnology Classes– University of Florence, Italy  
2010-2017 Biomedical Optics, Physics Master Course – University of Florence, Italy  
2011- Laser and Applications, Physics Master Course – University of Florence, Italy  
2017- Advanced Microscopy, Physics Master Course – University of Florence, Italy

### Visiting Academic Research Posts

- 2019- Imperial College London, Uk

### Professional Societies Affiliations

Optical Society of America (OSA), The International Society for Optical Engineering (SPIE), Society for Neuroscience (SfN).

### Organisation of international workshops

- 2000 Hydrogen Atom II: Precise physics of simple atomic systems, 1-3 June Castiglione della Pescaia, Italy  
2008 New Frontiers in Micro and Nano photonics, 23-26 April, Florence  
2013 European Congress on Biomedical Optics, 12-16 May, Munich  
2013 EuroBioImaging Stakeholder meeting, 25-26 November, Heidelberg  
2014 Laserlab JRA (EU Infrastructure Network Meeting), 13 May, Munich, Germany  
2014 Photonics West, 1-6 February, San Francisco, USA  
2014 Photonics Europe, 14-17 April, Bruxelles, Belgium.  
2015 Board of Directors meeting Human Brain Project, 3-4 June, Florence  
2015 Laserlab JRA (EU Infrastructure Network Meeting), 19 May, Florence, Italy  
2015 Optics and the Brain, OSA, 12-15 April, Vancouver, Canada

- 2015 Photonics West, 7-12 February, San Francisco, USA  
2016 Photonics Europe, 4 -7 April, Bruxelles, Belgium  
2016 Optics and the Brain, OSA, 25-28 April, Fort Lauderdale, Florida, USA  
2016 Photonics West, 1-6 February, San Francisco, USA  
2016 First Open Day of the H2020 Flagship Human Brain Project (HBP), 12 October 2016 Florence, Italy  
2016 H2020 Flagship HBP Summit 2016, 13-15 October 2016, Florence, Italy  
2017 Photonics West, 28 January - 2 February, San Francisco, USA.  
2017 Optics and the Brain, OSA, 2-5 April, San Diego, USA.  
2017 European Congress on Biomedical Optics, ECBO, 25-29 June, Munich, Germany.  
2018 Photonics West, 27 January – 1° February, San Francisco, USA.  
2018 Photonics Europe, 22- 26 April, Strasbourg, France.  
2018 International Conference on Bio-sensing and Imaging (ICOBISI), 17-19 December, Florence, Italy  
2019 Photonics West, 02 – 07 February, San Francisco, USA.  
2019 European Congress on Biomedical Optics, ECBO, 23-27 June, Munich, Germany.  
2020 Photonics West, 01 – 06 February, San Francisco, USA  
2021 European Congress on Biomedical Optics, ECBO, 20-24 June, Munich, Germany.  
2022 Innovative Multidisciplinary approaches to human health and social well being, 5-6 September, Neve Shalom, Israel

### **Institutional Responsibilities**

- 1999-2000 Scientific Director, Atomic and Molecular Physics section, LENS, University of Florence, Italy.  
2007-2012 Director of International PhD, LENS, University of Florence, Italy  
2009- Southern Europe node leader of worldwide network “Biophotonics4Life”.  
2011-2018 Director of the Italian National Flagship “Nanomax”.  
2011-2016 President of the non-profit foundation “ICON foundation – International Center of Computational Neurophotonics”, participated by LENS, University of Florence and IBM.  
2013- Member of the European Commission panel of experts on behalf of the Italian Ministry of Education and Research for the ERC-MSCA-FET projects.  
2014-2019 Director of the European Laboratory for Non Linear Spectroscopy (LENS)  
2016- Member of the National Committee for the “abilitazione scientifica nazionale” of the physics of matter  
2017- Member of the Steering Committee for the Chemistry Degree Course of University of Florence  
2017- University representative on the Board of Directors of the Institute and Museum of History of Science.  
2017- Member of the Panel board PE3 for the European Research Council (ERC) for the Advanced Grant Evaluations  
2018- Member of Board of Directors of Campus Bio-Medico University of Rome  
2019- President of the “Museo Galileo”, Florence, Italy  
2019- Italian Member of European Research Infrastructure Consortium (ERIC) Euro-Bioimaging Board

### **Journal Guest Editor**

- 2008 Volume 1 Issue 4, Journal of Biophotonics  
2017 Special issue on Biophotonics in Europe, Frontiers of Optoelectronics  
2017 Special issue on optical methods for life sciences, Chinese Optics Letter  
2017 Feature issue on Biophotonics, Biomedical Optical Express

### **Journal Editorial Boards**

- 2006- Member of Editorial Board of “Wiley – Journal of Biophotonics”, U.S.A.  
2008- Member of Editorial Board of “EPFL – Frontiers in Neuroengineering”, Switzerland  
2008- Member of Editorial Board of the journal “Hi Tech Dermo”, Italy  
2013- Member of Editorial Board of “Journal of Innovative Optical Health Sciences”, China  
2013- Member of Editorial Board of “Neurophotonics” journal, SPIE, U.S.A.

- 2014- Member of Editorial Board of “Journal of Biomedical Photonics and Engineering”, Russia  
2017- Member of Editorial Board of leading Column “Optics and Lasers” in Journal “Applied Sciences”  
2021- Member of Editorial Board of “Sensors”, MDPI, Switzerland (in process)

### Books Edited

1. Pavone, F.S., & Shoham, S. (2020). *Handbook of Neurophotonics* (1st ed.). CRC Press. <https://doi.org/10.1201/9780429194702>
2. Pavone, F.S., So, P.T.C., French, P.M.W. (2014). *Microscopy Applied to Biophotonics*. Vol. 181 of Proceedings of the International School of Physics "Enrico Fermi". IOS Press. ISBN 978-1-61499-412-1
3. Pavone, F.S., & Campagnola, P.J. (Eds.). (2013). *Second Harmonic Generation Imaging* (1st ed.). CRC Press. <https://doi.org/10.1201/b15039>
4. Pavone, F.S., (2010) *Laser Imaging and Manipulation in Cell Biology*. Wiley-VCH <https://doi.org/10.1002/9783527632053>
5. Karshenboim, S.G., Pavone, F.S., Bassani, F., Inguscio, M., Hänsch T.W. (2001). *The Hydrogen Atom: Precision Physics of Simple Atomic Systems*, (1<sup>st</sup> ed.). Springer-Verlag Berlin Heidelberg <https://doi.org/10.1007/3-540-45395-4>

### Panel Responsibilities

- 2011- Referee panel member for the National Sciences and Engineering Research Council of Canada, Canada  
2011- Referee panel member for the Agence Nationale de la Recherche, France  
2012 Referee panel member for the Deutsche Forschungsgemeinschaft (DFG), Germany  
2012- Member of the Scientific Advisory Board of the “France-BioImaging infrastructure, France  
2012- Member of the Scientific Board of Cineca, HPC Center, Italy  
2014- Vice Chair of European COST Action BM1401 Raman4Clinics, Bruxelles, Belgium  
2014- Member of Advisory Board Business of “Brain Challenge”, White House Initiative, U.S.A.  
2014- Member of the International Science Committee (ISC) of Australian Research Council of Excellence for Nanoscale BioPhotonics (CNBP), Australia  
2017- Expert review committee for Canada Foundation for Innovation (CFI), Toronto, Canada  
2017- Expert review Board for German Research Foundation (DFG) for “German Excellence Strategy”, Germany  
2017- Member of the Panel board PE3 for the European Research Council (ERC) for the Advanced Grant Evaluations, Bruxelles, Belgium  
2018- Expert review Board for German Research Foundation (DFG) for “Cluster of Excellence”  
2018- Expert of FNRS (Fund of Scientific Research), Rue d’Egmont 5, Brussels, Belgium  
2019- Expert review Board for German Research Foundation (DFG) for “Universities of Excellence”, Germany  
2020- Expert review of Finnish Academy of Science, Finland

### Consulting activities

- 2018- Consultant of the Company GLG, One Fitzroy, 6 Mortimer Street London, U.k.

### Grants

#### Active

- Human Brain Optical Mapping, Bank Foundation Fondazione Cassa di Risparmio di Firenze (FCRF), 2021-2023, EUR 1.186.466,67
- H2020-ICT-2018-2020, “Advanced Multimodal Photonics Laser Imaging Tool for Urothelial Diagnosis in Endoscopy” (Amplitude), EUR 518.000
- Laserlab Europe V, The integrated initiative of European Laser Research Infrastructures, EUR 408.000
- NIH, National Institute of Health Grant, “Imaging and Analysis Techniques to Construct a Cell

- Census Atlas of the Human Brain” 2018-2023, EUR 1.260.000
- EuroBioImaging, Ministry of Education, University and Research: *Advanced light-sheet microscopy Italian Node*, 2015-, EUR 440.000
- “Hyperprobe” EIC-Pathfinder EU Project, European Coordinator, total budget 4MEuro
- NIH, National Institute of Health Grant, “BRAIN CONNECTS: Mapping Connectivity of the Human Brainstem in a Nuclear Coordinate System”, n. U01NS132181; start date 09/01/2023 – end date 08/31/2026; budget \$1,471,807
- PRIN PNRR “COoperation and BRAIn-Synchrony: a multiscale and translatable approach”, n. P2022JZRWS, start date: 01.09.2023 - 31.08.2025; budget EUR 231.000
- PNRR IR European Brain ReseArch INfrastructureS-Italy (EBRAINS-Italy); CUP: B51E22000150006; budget € 697.200,00 (UNIFI); duration: 01.11.2022- 30.04.2025
- PNRR IR StrEngthEning the ItaLIan InFrastructure of Euro-bioimaging (SEE-LIFE); CUP: B53C22001810006; budget € 1.938.350,00; duration: 01.11.2022- 30.04.2025
- PNRR Tuscany Health Ecosystem (THE); CUP: B83C22003920001; budget € 250.181,00 duration: 01.12.2022- 30.11.2025
- 

### Past

- “Human Brain Project”, H2020 Flagship of European Commission SGA3, 2020-2023, EUR 610.904,15
- ERC Proof of Concept (POC) “Daptomic”, 2021-2023, EUR 150.000
- MIUR Fare “MIMIC” All-optical brain imaging and control in freely moving rodents, 2018-2021 EUR 249.000
- ERC Advanced BrainBIT, European Research Council Grant: 2016-2021, EUR 2.500.000
- Piccolo, H2020 Industrial Leadership – Information and Communication Technology, 2017-2020, EUR 361.000
- Human Brain Project H2020 Flagship of European Commission SGA2, 2018-2020, EUR 670,530.00.
- BadBugs “Quantitative measurement and imaging of drug-uptake by bacteria with antimicrobial resistance” EMPIR Euramet, 2016-2019, EUR 213.860
- Human Brain Project H2020 Flagship of European Commission SGA1, 2016-2018, EUR 1.668.100,00
- LightPatch, Eranet-project European Commission, 2014-2016, EUR 120.000.
- Human Brain Project H2020 Flagship of European Commission Rump-Up-Phase, 2013-2016, EUR 187.500.
- Laserlab Europe IV, The integrated initiative of European Laser Research Infrastructures, 2015-2019 EUR 420.000
- SMAG/Tuscany Region Grant: *Sviluppo e realizzazione di sistemi di Imaging multimodale*, 2013-2015, EUR 106.000.
- FIRB/Ministry of Education, University and Research: *from single molecules to whole animal model: an integrated approach to the study of intra and inter cellular signalling*, 2012-2016, EUR 310.994.
- NanoMAX Italian Flagship, 2011-2018, EUR 4.824.502,60.
- EuTrigTreat/European Commission Grant: *Research on cardiac dynamics and arrhythmias*, 2009-2015, EUR 189.000.

### **Evolution of the Scientific Research**

I started my scientific career in 1990 in the field of precision spectroscopy and atomic physics for testing QED in atomic systems and measuring physical constants. I moved to Paris in 1997 to work at the Ecole Normale Supérieure in Paris on laser cooling of Helium in the group of Prof. Claude Cohen Tannoudji, Nobel Prize in physics 1997. In November 1998 I became associate professor in Perugia and I started to set-up new experiments in the field of Biophysics with my own group. Since then, I have been working in the field of single molecule imaging and manipulation, cell imaging and manipulation, tissue imaging, advanced microscopy techniques. In particular, I’m working on linear and non linear microscopy techniques and spectroscopy applied to single molecule, single cells and tissue imaging, ranging from super-resolution up to high speed high throughput large specimen volumetric detection, big data managing and image processing by

deep learning techniques, with applications in advanced light microscopy and biomedical imaging.

## Patents

- Bibliographic data: WO2008006405 – Application Number: WO2006EP64224 20060713 – Priority Number: WO2006EP64224 20060713 – Inventors: M. Galimberti, F.S. Pavone – Applicants: Light4Tech Firenze Srl, M. Galimberti, F.S. Pavone - *Apparatus for real-time three-dimensional laser scanning microscopy, with detection of single- and multi-photon fluorescence and of higher order harmonics.*
- Bibliographic data: WO2009066264 – Application Number: WO2008IB54895 20081121 – Priority Number: IT2007FI00260 20071121 – Inventors: M. Galimberti, F.S. Pavone – Applicants: Light4Tech Firenze Srl, M. Galimberti, F.S. Pavone - *Device to illuminate an object with a multispectral light source and detect the spectrum of the emitted light.*
- Bibliographic data: WO/2018/122093 - System and method for measuring the focus state of an optical instrument. - Applicants: LENS (40%), UNIFI (30%) e CNR (30%). Inventors: L. Silvestri, M.C. Muellenbroich, L. Sacconi e F.S. Pavone.
- Italian Submitted Patent n. 102019000011904 - Sistema e metodo per spettroscopia elettromagnetica di un campione (Method and system for electromagnetic spectroscopy of a sample) - Applicants: CNR, Light4Tech Firenze Srl. Inventors: Joao L. Lagarto, Francesco S. Pavone, Riccardo Cicchi.
- Italian Submitted Patent n. 102020000012610 - Dispositivo e procedimento per l'analisi di campioni di fluidi corporei - Applicants: CNR, University of Florence, LENS, Azienda Ospedaliera Universitaria Careggi, Inventors: Enrico Baria, Riccardo Cicchi, Simone Morselli, Francesco S. Pavone, Mauro Gacci.

## Publications

### Peer-Reviewed Journals

1. Capitini C, Bigi A, Parenti N, Emanuele M, Bianchi N, Cascella R, Cecchi C, Maggi L, Annunziato F, Pavone FS, Calamai M. APP and Bace1: Differential effect of cholesterol enrichment on processing and plasma membrane mobility. *iScience*. 2023 Apr 11;26(5):106611. doi: 10.1016/j.isci.2023.106611. PMID: 37128606; PMCID: PMC10148118.
2. Laurino A, Franceschini A, Pesce L, Cinci L, Montalbano A, Mazzamuto G, Sancataldo G, Nesi G, Costantini I, Silvestri L, Pavone FS. A Guide to Perform 3D Histology of Biological Tissues with Fluorescence Microscopy. *Int J Mol Sci*. 2023 Apr 4;24(7):6747. doi: 10.3390/ijms24076747. PMID: 37047724; PMCID: PMC10094801.
3. Sorelli M, Costantini I, Bocchi L, Axer M, Pavone FS, Mazzamuto G. Fiber enhancement and 3D orientation analysis in label-free two-photon fluorescence microscopy. *Sci Rep*. 2023 Mar 13;13(1):4160. doi: 10.1038/s41598-023-30953-w. PMID: 36914673; PMCID: PMC10011555.
4. Capone C, De Luca C, De Bonis G, Gutzen R, Bernava I, Pastorelli E, Simula F, Lupo C, Tonielli L, Resta F, Allegra Mascaro AL, Pavone F, Denker M, Paolucci PS. Simulations approaching data: cortical slow waves in inferred models of the whole hemisphere of mouse. *Commun Biol*. 2023 Mar 13;6(1):266. doi: 10.1038/s42003-023-04580-0. PMID: 36914748; PMCID: PMC10011502.
5. Baria E, Giordano F, Guerrini R, Caporalini C, Buccoliero AM, Cicchi R, Pavone FS. Dysplasia and tumor discrimination in brain tissues by combined fluorescence, Raman, and diffuse reflectance spectroscopies. *Biomed Opt Express*. 2023 Feb 24;14(3):1256-1275. doi: 10.1364/BOE.477035. PMID: 36950232; PMCID: PMC10026567.
6. Tort-Colet N, Resta F, Montagni E, Pavone F, Allegra Mascaro AL, Destexhe A. Assessing brain state and anesthesia level with two-photon calcium signals. *Sci Rep*. 2023 Feb 23;13(1):3183. doi: 10.1038/s41598-023-30224-8. PMID: 36823228; PMCID: PMC9950142.
7. Conti E, Carlini N, Piccardi B, Allegra Mascaro AL, Pavone FS. Photothrombotic Middle Cerebral Artery Occlusion in Mice: A Novel Model of Ischemic Stroke. *eNeuro*. 2023 Feb 8;10(2):ENEURO.0244-22.2022. doi: 10.1523/ENEURO.0244-22.2022. PMID: 36650068; PMCID: PMC9910575.

8. Optimization of highly inclined Illumination for diffraction-limited and super-resolution microscopy L. Gardini, T. Vignolini, V. Curcio, F.S. Pavone, M. Capitanio, bioRxiv 2023.02.17.528478; doi: <https://doi.org/10.1101/2023.02.17.528478>
9. Vittorio Ferrara, Marco Marchetti, Domenico Alfieri, Lorenzo Targetti, Michelangelo Scopelliti, Bruno Pignataro, Francesco Pavone, Valeria Vetri, Giuseppe Sancataldo, Blue light activated photodegradation of biomacromolecules by N-doped titanium dioxide in a chitosan hydrogel matrix, *Journal of Photochemistry and Photobiology A: Chemistry*, Volume 437, 2023, 114451, ISSN 1010-6030, <https://doi.org/10.1016/j.jphotochem.2022.114451> (<https://www.sciencedirect.com/science/article/pii/S1010603022006748>)
10. Biasci, V., Santini, L., Marchal, G. A., Hussaini, S., Ferrantini, C., Coppini, R., Loew, L. M., Luther, S., Campione, M., Poggesi, C., Pavone, F. S., Cerbai, E., Bub, G., & Sacconi, L. (2022). Optogenetic manipulation of cardiac electrical dynamics using sub-threshold illumination: dissecting the role of cardiac alternans in terminating rapid rhythms. *Basic research in cardiology*, 117(1), 25. <https://doi.org/10.1007/s00395-022-00933-8>
11. Innocenti, R., Dallari, C., Lenci, E., Pavone, F. S., Bianchini, F., Credi, C., & Trabocchi, A. (2022). Design, synthesis and evaluation of RGD peptidomimetic - Gold nanostar conjugates as M21 cell adhesion inhibitors. *Bioorganic chemistry*, 126, 105873. <https://doi.org/10.1016/j.bioorg.2022.105873>
12. Biasci, V., Santini, L., Marchal, G. A., Hussaini, S., Ferrantini, C., Coppini, R., Loew, L. M., Luther, S., Campione, M., Poggesi, C., Pavone, F. S., Cerbai, E., Bub, G., & Sacconi, L. (2022). Optogenetic manipulation of cardiac electrical dynamics using sub-threshold illumination: dissecting the role of cardiac alternans in terminating rapid rhythms. *Basic research in cardiology*, 117(1), 25. <https://doi.org/10.1007/s00395-022-00933-8>
13. Pesce, L., Scardigli, M., Gavryusev, V., Laurino, A., Mazzamuto, G., Brady, N., Sancataldo, G., Silvestri, L., Destrieux, C., Hof, P. R., Costantini, I., & Pavone, F. S. (2022). 3D molecular phenotyping of cleared human brain tissues with light-sheet fluorescence microscopy. *Communications biology*, 5(1), 447. <https://doi.org/10.1038/s42003-022-03390-0>
14. Scaglione, A., Conti, E., Allegra Mascaro, A. L., & Pavone, F. S. (2022). Tracking the Effect of Therapy With Single-Trial Based Classification After Stroke. *Frontiers in systems neuroscience*, 16, 840922. <https://doi.org/10.3389/fnsys.2022.840922>
15. Dallari, C., Innocenti, R., Lenci, E., Trabocchi, A., Pavone, F. S., & Credi, C. (2022). Design and Synthesis of Novel Raman Reporters for Bioorthogonal SERS Nanoprobes Engineering. *International journal of molecular sciences*, 23(10), 5573. <https://doi.org/10.3390/ijms23105573>
16. Turrini, L., Sorelli, M., de Vito, G., Credi, C., Tiso, N., Vanzi, F., & Pavone, F. S. (2022). Multimodal Characterization of Seizures in Zebrafish Larvae. *Biomedicines*, 10(5), 951. <https://doi.org/10.3390/biomedicines10050951>
17. Arbore, C., Sergides, M., Gardini, L., Bianchi, G., Kashchuk, A. V., Pertici, I., Bianco, P., Pavone, F. S., & Capitanio, M. (2022).  $\alpha$ -catenin switches between a slip and an asymmetric catch bond with F-actin to cooperatively regulate cell junction fluidity. *Nature communications*, 13(1), 1146. <https://doi.org/10.1038/s41467-022-28779-7>
18. de Vito, G., Turrini, L., Müllenbroich, C., Ricci, P., Sancataldo, G., Mazzamuto, G., Tiso, N., Sacconi, L., Fanelli, D., Silvestri, L., Vanzi, F., & Pavone, F. S. (2022). Fast whole-brain imaging of seizures in zebrafish larvae by two-photon light-sheet microscopy. *Biomedical optics express*, 13(3), 1516–1536. <https://doi.org/10.1364/BOE.434146>
19. Giovannelli, A., Mattana, S., Emiliani, G., Anichini, M., Traversi, M. L., Pavone, F. S., & Cicchi, R. (2022). Localized stem heating from the rest to growth phase induces latewood-like cell formation and slower stem radial growth in Norway spruce saplings. *Tree physiology*, 42(6), 1149–1163. <https://doi.org/10.1093/treephys/tpab166>
20. Quarta, E., Scaglione, A., Lucchesi, J., Sacconi, L., Allegra Mascaro, A. L., & Pavone, F. S. (2022). Distributed and Localized Dynamics Emerge in the Mouse Neocortex during Reach-to-Grasp Behavior. *The Journal of neuroscience : the official journal of the Society for Neuroscience*, 42(5), 777–788. <https://doi.org/10.1523/JNEUROSCI.0762-20.2021>
21. Ricci, P., Marchetti, M., Sorelli, M., Turrini, L., Resta, F., Gavryusev, V., de Vito, G., Sancataldo, G., Vanzi, F., Silvestri, L., & Pavone, F. S. (2022). Power-effective scanning with AODs for 3D

- optogenic applications. *Journal of biophotonics*, 15(4), e202100256. <https://doi.org/10.1002/jbio.202100256>
22. Shaik, T. A., Baria, E., Wang, X., Korinth, F., Lagarto, J. L., Höppener, C., Pavone, F. S., Deckert, V., Popp, J., Cicchi, R., & Krafft, C. (2022). Structural and Biochemical Changes in Pericardium upon Genipin Cross-Linking Investigated Using Nondestructive and Label-Free Imaging Techniques. *Analytical chemistry*, 94(3), 1575–1584. <https://doi.org/10.1021/acs.analchem.1c03348>
  23. Abdelfattah AS, Ahuja S, Akkin T, Allu SR, Brake J, Boas DA, Buckley EM, Campbell RE, Chen AI, Cheng X, Čizmár T, Costantini I, De Vittorio M, Devor A, Doran PR, El Khatib M, Emiliani V, Fomin-Thunemann N, Fainman Y, Fernandez-Alfonso T, Ferri CGL, Gilad A, Han X, Harris A, Hillman EMC, Hochgeschwender U, Holt MG, Ji N, Kılıç K, Lake EMR, Li L, Li T, Mächler P, Miller EW, Mesquita RC, Nadella KMNS, Nägerl UV, Nasu Y, Nimmerjahn A, Ondráčková P, Pavone FS, Perez Campos C, Peterka DS, Pisano F, Pisanello F, Puppo F, Sabatini BL, Sadegh S, Sakadzic S, Shoham S, Shroff SN, Silver RA, Sims RR, Smith SL, Srinivasan VJ, Thunemann M, Tian L, Tian L, Troxler T, Valera A, Vaziri A, Vinogradov SA, Vitale F, Wang LV, Uhlířová H, Xu C, Yang C, Yang MH, Yellen G, Yizhar O, Zhao Y. Neurophotonic tools for microscopic measurements and manipulation: status report. *Neurophotonics*. 2022 Jan;9(Suppl 1):013001. doi: 10.1117/1.NPh.9.S1.013001. Epub 2022 Apr 27. PMID: 35493335; PMCID: PMC9047450.
  24. Olianti, C., Giardini, F., Lazzeri, E., Costantini, I., Silvestri, L., Coppini, R., Cerbai, E., Pavone, F. S., & Sacconi, L. (2022). Optical clearing in cardiac imaging: A comparative study. *Progress in biophysics and molecular biology*, 168, 10–17. <https://doi.org/10.1016/j.pbiomolbio.2021.07.012>
  25. Pesce, L., Laurino, A., Scardigli, M., Yang, J., Boas, D. A., Hof, P. R., Destrieux, C., Costantini, I., & Pavone, F. S. (2022). Exploring the human cerebral cortex using confocal microscopy. *Progress in biophysics and molecular biology*, 168, 3–9. <https://doi.org/10.1016/j.pbiomolbio.2021.09.001>
  26. Ricci, P., Gavryusev, V., Müllenbroich, C., Turrini, L., de Vito, G., Silvestri, L., Sancataldo, G., & Pavone, F. S. (2022). Removing striping artifacts in light-sheet fluorescence microscopy: a review. *Progress in biophysics and molecular biology*, 168, 52–65. <https://doi.org/10.1016/j.pbiomolbio.2021.07.003>
  27. Terrosi, C., Anichini, G., Docquier, J. D., Gori Savellini, G., Gandolfo, C., Pavone, F. S., & Cusi, M. G. (2021). *Efficient Inactivation of SARS-CoV-2 and Other RNA or DNA Viruses with Blue LED Light*. *Pathogens* (Basel, Switzerland), 10(12), 1590. <https://doi.org/10.3390/pathogens10121590>
  28. Giardini, F., Lazzeri, E., Vitale, G., Ferrantini, C., Costantini, I., Pavone, F. S., Poggesi, C., Bocchi, L., & Sacconi, L. (2021). Quantification of Myocyte Disarray in Human Cardiac Tissue. *Frontiers in physiology*, 12, 750364. <https://doi.org/10.3389/fphys.2021.750364>
  29. Conti, E., Scaglione, A., de Vito, G., Calugi, F., Pasquini, M., Pizzorusso, T., Micera, S., Allegra Mascaro, A. L., & Pavone, F. S. (2022). Combining Optogenetic Stimulation and Motor Training Improves Functional Recovery and Perilesional Cortical Activity. *Neurorehabilitation and Neural Repair*, 36(2), 107–118. <https://doi.org/10.1177/15459683211056656>
  30. Scardigli, M; Pesce, L; Pavone, FS; Scardigli, Marina; Pesce, Luca; Brady, Niamh; Mazzamuto, Giacomo; Gavryusev, Vladislav; Silvestri, Ludovico; Hof, Patrick R; Destrieux, Christophe; Costantini, Irene; Pavone, Francesco S, *Comparison of Different Tissue Clearing Methods for Three-Dimensional Reconstruction of Human Brain Cellular Anatomy Using Advanced Imaging Techniques*, *Frontiers in neuroanatomy*. , 2021, Vol.15, ISSN: 1662-5129 , 1662-5129; DOI: 10.3389/fnana.2021.752234
  31. Casalone, E; Vignolini, T; Teodori, E; Casalone, Enrico; Vignolini, Tiziano; Braconi, Laura; Gardini, Lucia; Capitanio, Marco; Pavone, Francesco S; Giovannelli, Lisa; Dei, Silvia; Teodori, Elisabetta, *Characterization of substituted piperazines able to reverse MDR in Escherichia coli strains overexpressing resistance-nodulation-cell division (RND) efflux pumps*, *Journal of antimicrobial chemotherapy*, 2022, Vol.77(2), p.413-424, ISSN: 0305-7453 , 1460-2091; DOI: 10.1093/jac/dkab388
  32. Giardini, F; Lazzeri, E; Sacconi, L; Giardini, Francesco; Lazzeri, Erica; Olianti, Camilla; Beconi, Giada; Costantini, Irene; Silvestri, Ludovico; Cerbai, Elisabetta; Pavone, Francesco S; Sacconi, Leonardo, *Mesosopic Optical Imaging of Whole Mouse Heart*, *JoVE*. , 2021, (176), ISSN: 1940-087X , 1940-087X; DOI: 10.3791/62795

33. Credi, C., Balducci, V., Munagala, U., Cianca, C., Bigiarini, S., de Vries, A., Loew, L. M., Pavone, F. S., Cerbai, E., Sartiani, L., & Sacconi, L. (2021). *Fast Optical Investigation of Cardiac Electrophysiology by Parallel Detection in Multiwell Plates*. *Frontiers in physiology*, 12, 692496. <https://doi.org/10.3389/fphys.2021.692496>
34. Silvestri, L., Müllenbroich, M.C., Costantini, I., Di Giovanna, A.P., Mazzamiuto, G., Franceschini, A., Kutra, D., Kreshuk, A., Checcucci, C., Toresano, L.O., Fraascono, P., Sacconi, L., Pavone, F.S., Universal autofocus for quantitative volumetric microscopy of whole mouse brains. *Nat Methods* 18, 953–958 (2021). <https://doi.org/10.1038/s41592-021-01208-1>
35. Gardini, L; Kashchuk, AV; Capitano, M; Kashchuk, A V; Pavone, F S, *Dissecting Mechanoenzymatic Properties of Processive Myosins with Ultra Force-Clamp Spectroscopy*, *JoVE.* , 2021, (173), ISSN: 1940-087X , 1940-087X; DOI: 10.3791/62388
36. Costantini, I., Mazzamuto, G., Roffilli, M., Laurino, A., Maria Castelli, F., Neri, M., Lughi, G., Simonetto, A., Lazzeri, E., Pesce, L., Destrieux, C., Silvestri, L., Conti, V., Guerrini, R., & Saverio Pavone, F. (2021). *Large-scale, cell-resolution volumetric mapping allows layer-specific investigation of human brain cytoarchitecture*. *Biomedical optics express*, 12(6), 3684–3699. <https://doi.org/10.1364/BOE.415555>
37. Bon, S. B., Chiesa, I., Degli Esposti, M., Morselli, D., Fabbri, P., De Maria, C., Morabito, A., Coletta, R., Calamai, M., Pavone, F. S., Tonin, R., Morrone, A., Giorgi, G., & Valentini, L. (2021). *Carbon Nanotubes/Regenerated Silk Composite as a Three-Dimensional Printable Bio-Adhesive Ink with Self-Powering Properties*. *ACS applied materials & interfaces*, 13(18), 21007–21017. <https://doi.org/10.1021/acsami.1c03288>
38. Cecchini, G., Scaglione, A., Allegra Mascaro, A. L., Checcucci, C., Conti, E., Adam, I., Fanelli, D., Livi, R., Pavone, F. S., & Kreuz, T. (2021). *Cortical propagation tracks functional recovery after stroke*. *PLoS computational biology*, 17(5), e1008963. <https://doi.org/10.1371/journal.pcbi.1008963>
39. Costantini, I., Baria, E., Sorelli, M., Matuschke, F., Giardini, F., Menzel, M., Mazzamuto, G., Silvestri, L., Cicchi, R., Amunts, K., Axer, M., & Pavone, F. S. (2021). *Autofluorescence enhancement for label-free imaging of myelinated fibers in mammalian brains*. *Scientific reports*, 11(1), 8038. <https://doi.org/10.1038/s41598-021-86092-7>
40. Morselli, S., Baria, E., Cicchi, R., Liaci, A., Sebastianelli, A., Nesi, G., Serni, S., Pavone, F. S., & Gacci, M. (2021). *The feasibility of multimodal fiber optic spectroscopy analysis in bladder cancer detection, grading, and staging*. *Urologia Journal*, 88(4), 306–314. <https://doi.org/10.1177/03915603211007018>
41. Dallari C, Capitini C, Calamai M, Trabocchi A, Pavone FS, Credi C. *Gold Nanostars Bioconjugation for Selective Targeting and SERS Detection of Biofluids*. *Nanomaterials (Basel)*. 2021;11(3):665. doi:10.3390/nano11030665
42. Shaik, TA; Lagarto, JL; Cicchi, R; Shaik, Tanveer Ahmed; Lagarto, João L; Baria, Enrico; Goktas, Melis; Onoja, Patrick Igoche; Blank, Kerstin G; Pavone, Francesco S; Popp, Jürgen; Krafft, Christoph; Cicchi, Riccardo, *Monitoring Changes in Biochemical and Biomechanical Properties of Collagenous Tissues Using Label-Free and Nondestructive Optical Imaging Techniques*, *Analytical chemistry* (2021), 93(8): 3813-3821, DOI: 10.1021/acs.analchem.0c04306
43. Gardini, L; Vignolini, T; Pavone, FS, *Quantitative Superresolution Imaging of Efflux Pumps in Biofilm-Associated Bacteria*, *Biophysical journal* (2021), 120(3): 13A-13A, ISSN: 0006-3495 , 1542-0086 **MEETING ABSTRACT**
44. M. Sergides; C. Arbore, L. Gardini, F.S. Pavone, M. Capitano, *alpha-Catenin Forms an Unconventional Slip Bond with Actin that Switches Cooperatively into a Catch Bond*, *Biophysical journal* (2021) 120 (3): 236A-236A, ISSN: 0006-3495 , 1542-0086 **MEETING ABSTRACT**
45. M. Sergides, L. Perego, T. Galgani, C. Arbore, F. S. Pavone and M. Capitano, *Probing mechanotransduction in living cells by optical tweezers and FRET-based molecular force microscopy*, *Eur. Phys. J. Plus* (2021) **136**: 316 <https://doi.org/10.1140/epjp/s13360-021-01273-7>
46. Chicchi, L., Cecchini, G., Adam, I., G. de Vito, R. Livi, F. S. Pavone L. Silvestri, L. Turrini, F. Vanzi and D. Fanelli, *Reconstruction scheme for excitatory and inhibitory dynamics with quenched*

- disorder: application to zebrafish imaging.* J Comput Neurosci (2021).  
<https://doi.org/10.1007/s10827-020-00774-1>
47. Rossi F, Magni G, Tatini F, Banchelli M, Cherchi F, Rossi M, Coppi E, Pugliese AM, Rossi degl'Innocenti D, Alfieri D, Pavone FS, Pini R, Matteini P. *Photobiomodulation of Human Fibroblasts and Keratinocytes with Blue Light: Implications in Wound Healing.* Biomedicines. 2021 Jan 5;9(1):41. doi: 10.3390/biomedicines9010041. PMID: 33466557; PMCID: PMC7824830.
  48. Baria E, Cicchi R, Malentacchi F, Mancini I, Pinzani P, Pazzagli M, Pavone FS. *Supervised learning methods for the recognition of melanoma cell lines through the analysis of their Raman spectra.* J Biophotonics. 2020 Dec 11:e202000365. doi: 10.1002/jbio.202000365. Epub ahead of print. PMID: 33305912.
  49. Magni G, Banchelli M, Cherchi F, Coppi E, Fraccalvieri M, Rossi M, Tatini F, Pugliese AM, Rossi Degl'Innocenti D, Alfieri D, Matteini P, Pini R, Pavone FS, Rossi F. *Experimental Study on Blue Light Interaction with Human Keloid-Derived Fibroblasts.* Biomedicines. 2020 Dec 6;8(12):573. doi: 10.3390/biomedicines8120573. PMID: 33291338; PMCID: PMC7762279.
  50. Lagarto JL, Shcheslavskiy V, Pavone FS, Cicchi R. *Real-time fiber-based fluorescence lifetime imaging with synchronous external illumination: A new path for clinical translation.* J Biophotonics. 2020 Mar;13(3):e201960119. doi: 10.1002/jbio.201960119. Epub 2019 Dec 3. PMID: 31742905.
  51. Baria E, Pracucci E, Pillai V, Pavone FS, Ratto GM, Cicchi R. *In vivo detection of murine glioblastoma through Raman and reflectance fiber-probe spectroscopies.* Neurophotonics. 2020 Oct;7(4):045010. doi: 10.1117/1.NPh.7.4.045010. Epub 2020 Dec 1. PMID: 33274251; PMCID: PMC7707056.
  52. Adam I., Cecchini G., Fanelli D., Kreuz T., Livi R., di Volo M., Allegra Mascaro A. L., Conti E., Scaglione A., Silvestri L., Pavone F. S., *Inferring network structure and local dynamics from neuronal patterns with quenched disorder.* Chaos, Solitons & Fractals, Volume 140, Nov. 2020, 110235, ISSN 0960-0779, <https://doi.org/10.1016/j.chaos.2020.110235>.
  53. Fornetto C, Tiso N, Pavone FS, Vanzi F. *Colored visual stimuli evoke spectrally tuned neuronal responses across the central nervous system of zebrafish larvae.* BMC Biol. 2020 Nov 27;18(1):172. doi: 10.1186/s12915-020-00903-3. PMID: 33243249; PMCID: PMC7694941.
  54. Guo S, Beleites C, Neugebauer U, Abalde-Cela S, Afseth NK, Alsamad F, Anand S, Araujo-Andrade C, Aškračić S, Avci E, Baia M, Baranska M, Baria E, Batista de Carvalho LAE, de Bettignies P, Bonifacio A, Bonnier F, Brauchle EM, Byrne HJ, Chourpa I, Cicchi R, Cuisinier F, Culha M, Dahms M, David C, Duponchel L, Duraipandian S, El-Mashtoly SF, Ellis DI, Eppe G, Falgayrac G, Gamulin O, Gardner B, Gardner P, Gerwert K, Giamarellos-Bourboulis EJ, Gizurason S, Gnyba M, Goodacre R, Grysan P, Guntinas-Lichius O, Helgadottir H, Grošev VM, Kendall C, Kiselev R, Kölbach M, Krafft C, Krishnamoorthy S, Kubryck P, Lendl B, Loza-Alvarez P, Lyng FM, Machill S, Malherbe C, Marro M, Marques MPM, Matuszyk E, Morasso CF, Moreau M, Muhamadali H, Mussi V, Notingher I, Pacia MZ, Pavone FS, Penel G, Petersen D, Piot O, Rau JV, Richter M, Rybarczyk MK, Salehi H, Schenke-Layland K, Schlücker S, Schosserer M, Schütze K, Sergo V, Sinjab F, Smulko J, Sockalingum GD, Stiebing C, Stone N, Untereiner V, Vanna R, Wieland K, Popp J, Bocklitz T. *Comparability of Raman Spectroscopic Configurations: A Large Scale Cross-Laboratory Study.* Anal Chem. 2020 Dec 15;92(24):15745-15756. doi: 10.1021/acs.analchem.0c02696. Epub 2020 Nov 21. PMID: 33225709.
  55. Franceschini, A., Costantini, I., Pavone, F. S., Silvestri, L., *Dissecting Neuronal Activation on a Brain-Wide Scale With Immediate Early Genes.* Frontiers in Neuroscience, 2020 Oct 23, 14:569517. doi: 10.3389/fnins.2020.569517
  56. Scardigli M, Cannazzaro S, Coppini R, Crocini C, Yan P, Loew LM, Sartiani L, Cerbai E, Pavone FS, Sacconi L, Ferrantini C. *Arrhythmia susceptibility in a rat model of acute atrial dilation.* Prog Biophys Mol Biol. 2020 Aug;154:21-29. doi: 10.1016/j.pbiomolbio.2019.08.012. Epub 2020 Feb 13. PMID: 32063273.
  57. Meneghetti, N., dedola, F., Gavryusev, V., Sancataldo, G., Turrini, L., de Vito, G., Tiso, N., Vanzi, F., Carpaneto, J., Cutrone, A., Pavone, F. S., Micera, S., and Mazzoni, A. (2020). *Direct activation of*

- zebrafish neurons by ultrasonic stimulation revealed by whole CNS calcium imaging.* Journal of Neural Engineering 17 :05603, doi: 10.1088/1741-2552/abae8b
58. De Vito, G., Ricci, P., Turrini, L., Gavryusev, V., Muellenbroich, M. C., Tiso, N., Vanzi, F., Silvestri, L., and Pavone, F. S. (2020). *Effects of excitation light polarization on fluorescence emission in two-photon light-sheet microscopy.* Biomedical Optical Express 11 :4651-4665. doi: 10.1364/BOE.396388
59. Olianti, C., Costantini, I., Giardini, F., Lazzeri, E., Crocini, C., Ferrantini, C., Pavone, F. S., Camici, P. G., and Sacconi, L. (2020). *3D imaging and morphometry of the heart capillary system in spontaneously hypertensive rats and normotensive controls.* Scientific Reports 10, Aug 2020:14276. doi: 10.1038/s41598-020-71174-9
60. Casalone, E., Vignolini, T., Braconi, L., Gardini, L., Capitanio, M., Pavone, F. S., Dei, S., and Teodori, E. (2020). *1-benzyl-1,4-diazepane reduces the efflux of resistance-nodulation-cell division pumps in Escherichia coli.* Future Microbiology 15 :987-999.
61. Allegra Mascaro, A. L., Falotico, E., Petkoski, S., Pasquini, M., Vannucci, L., Tort-Colet, N., Conti, E., Resta, F., Spalletti, C., Ramalingasetty, S. T, Von Arnim, A., Formento, E., Angelidis, E., Blixhavn, C. H., Leergaard, T. B., Caleo, M., Destexhe, A., Ijspeert, A., Micera, S., Laschi, C., Jirsa, V., Gewaltig, M. O., and Pavone, F. S. (2020). *Experimental and Computational Study on Motor Control and Recovery After Stroke: Toward a Constructive Loop Between Experimental and Virtual Embodied Neuroscience.* Frontiers in Systems Neuroscience 14 :31. doi: 10.3389/fnsys.2020.00031
62. Ricci, P., Sancataldo, G., Gavryusev, V., Franceschini, A., Muellenbroich, M. C., Silvestri, L., and Pavone, F. S. (2020). *Fast multi-directional DSLM for confocal detection without striping artifacts.* Biomedical Optical Express 11 :3111-3124. doi: 10.1364/BOE.390916
63. Lagarto JL, Villa F, Tisa S, et al. *Real-time multispectral fluorescence lifetime imaging using Single Photon Avalanche Diode arrays.* Sci Rep. 2020;10(1):8116. Published 2020 May 15. doi:10.1038/s41598-020-65218-3
64. Mercatelli R, Triulzi T, Pavone FS, Orlandi R, Cicchi R., *Collagen Ultrastructural Symmetry and Its Malignant Alterations in Human Breast Cancer Revealed by Polarization SHG Microscopy,* J Biophotonics. 2020 May 29. doi: 10.1002/jbio.202000159
65. Lagarto JL, Shcheslavskiy V, Saverio Pavone F, Cicchi R. *Simultaneous fluorescence lifetime and Raman fiber-based mapping of tissues.* Opt Lett. 2020;45(8):2247-2250. doi:10.1364/OL.389300
66. Querceto S., Ferrantini C., Grandinetti B., Martella D., Manuel P. J., Diederik S. W., Cerbai E., Pavone F. S., Tesi C., Poggesi C., Sacconi L., Parmeggiani C., *Microled Illumination Towards Liquid Crystalline Elastomers Based Cardiac Contraction Assistance,* Biophysical Journal, Volume 118, Issue 3, 424a - 425a, doi: 10.1016/j.bpj.2019.11.2389
67. Credi C, Bibikova O, Dallari C, et al. *Fiber-cap biosensors for SERS analysis of liquid samples.* J Mater Chem B. 2020;8(8):1629-1639. doi:10.1039/c9tb01866b
68. M. Celotto, C. De Luca, F. Resta, A. L. Allegra Mascaro, F. S. Pavone, G. De Bonis, P. S. Paolucci, *Analysis and Model of Cortical Slow Waves Acquired with Optical Techniques.* Methods Protoc. 2020, 3, 14
69. A. Dal Fovo, M. Sanz, S. Mattana, M. Oujja, M. Marchetti, F. S. Pavone, R. Cicchi, R. Fontana, M. Castillejo, *Safe limits for the application of nonlinear optical microscopies to cultural heritage: A new method for in-situ assessment.* Microchemical Journal 2020 May (online 23 Dec 2019). doi: 10.1016/j.microc.2019.104568
70. R. Coppini, C. Ferrantini, J. M. Pioner, L. Santini, Z. J. Wang, C. Palandri, M. Scardigli, G. Vitale, L. Sacconi, P. Stefano, L. Flink, K. Riedy, F. S. Pavone, E. Cerbai, C. Poggesi, A. Mugelli, A. Bueno-Orovio, I. Olivotto, M. V. Sherrid, *Electrophysiological and Contractile Effects of Disopyramide in Patients With Obstructive Hypertrophic Cardiomyopathy: A Translational Study.* JACC: Basic to Translational Science, Volume 4, Issue 7, November 2019, Pages 795-813
71. Tonin R, Caciotti A, Procopio E, Fischetto R, Deodato F, Mancardi MM, Di Rocco M, Ardisson A, Salviati A, Marangi A, Strisciuglio P, Mangone G, Casini A, Ricci S, Fiumara A, Parini R, Pavone FS, Guerrini R, Calamai M, Morrone A. *Pre-diagnosing and managing patients with GM1 gangliosidosis and related disorders by the evaluation of GM1 ganglioside content.* Sci Rep. 2019 Nov 27;9(1):17684. doi: 10.1038/s41598-019-53995-5.

72. Magni G, Tatini F, Bacci S, Paroli G, de Siena G, Cicchi R, Pavone FS, Pini R, Rossi F. *Blue LED Light Modulates Inflammatory Infiltrate and Improves the Healing of Superficial Wounds*. *Photodermatol Photoimmunol Photomed*. 2019 Nov 26. doi: 10.1111/phpp.12527. [Epub ahead of print]
73. Lagarto JL, Shcheslavskiy V, Pavone FS, Cicchi R. *Real-time fiber-based fluorescence lifetime imaging with synchronous external illumination: a new path for clinical translation*. *J Biophotonics*. 2019 Nov 19:e201960119. doi: 10.1002/jbio.201960119. [Epub ahead of print]
74. Gavryusev V, Sancataldo G, Ricci P, Montalbano A, Fornetto C, Turrini L, Laurino A, Pesce L, de Vito G, Tiso N, Vanzi F, Silvestri L, Pavone FS. *Dual-beam confocal light-sheet microscopy via flexible acousto-optic deflector*. *J Biomed Opt*. 2019 Oct;24(10):1-6. doi: 10.1117/1.JBO.24.10.106504.
75. Costantini I, Cicchi R, Silvestri L, Vanzi F, Pavone FS. *In-vivo and ex-vivo optical clearing methods for biological tissues: review*. *Biomed Opt Express*. 2019 Sep 19;10(10):5251-5267. doi: 10.1364/BOE.10.005251. eCollection 2019 Oct 1.
76. Allegra Mascaro AL, Conti E, Lai S, Di Giovanna AP, Spalletti C, Alia C, Panarese A, Scaglione A, Sacconi L, Micera S, Caleo M, Pavone FS. *Combined Rehabilitation Promotes the Recovery of Structural and Functional Features of Healthy Neuronal Networks after Stroke*. *Cell Rep*. 2019 Sep 24;28(13):3474-3485.e6. doi: 10.1016/j.celrep.2019.08.062.
77. Gardini L, Arbore C, Capitanio M, Pavone FS. *A protocol for single molecule imaging and tracking of processive myosin motors*. *MethodsX*. 2019 Aug 23;6:1854-1862. doi: 10.1016/j.mex.2019.08.011. eCollection 2019.
78. Baria E, Morselli S, Anand S, Fantechi R, Nesi G, Gacci M, Carini M, Serni S, Cicchi R, Pavone FS. *Label-free grading and staging of urothelial carcinoma through multimodal fibre-probe spectroscopy*. *J Biophotonics*. 2019 Nov;12(11):e201900087. doi: 10.1002/jbio.201900087. Epub 2019 Aug 13.
79. Marchetti M, Baria E, Cicchi R, Pavone FS. *Custom Multiphoton/Raman Microscopy Setup for Imaging and Characterization of Biological Samples*. *Methods Protoc*. 2019 Jun 20;2(2). pii: E51. doi: 10.3390/mps2020051. PubMed PMID: 31226732; PubMed Central PMCID: PMC6632174.
80. Maffei M, Beneventi D, Canepari M, Bottinelli R, Pavone FS, Capitanio M. *Ultra-fast force-clamp spectroscopy data on the interaction between skeletal muscle myosin and actin*. *Data Brief*. 2019 May 23;25:104017. doi: 10.1016/j.dib.2019.104017. eCollection 2019 Aug.
81. Di Giovanna AP, Tibo A, Silvestri L, Müllenbroich MC, Costantini I, Allegra Mascaro AL, Sacconi L, Frascioni P, Pavone FS. *Publisher Correction: Whole-Brain Vasculature Reconstruction at the Single Capillary Level*. *Sci Rep*. 2019 Jun 14;9(1):8765. doi: 10.1038/s41598-019-42216-8.
82. Gardini L, Arbore C, Pavone FS, Capitanio M. *Myosin V fluorescence imaging dataset for single-molecule localization and tracking*. *Data Brief*. 2019 May 23;25:103973. doi: 10.1016/j.dib.2019.103973. eCollection 2019 Aug.
83. Monico C, Tempestini A, Gardini L, Pavone FS, Capitanio M. *Data on the target search by a single protein on DNA measured with ultrafast force-clamp spectroscopy*. *Data Brief*. 2019 Apr 28;24:103918. doi: 10.1016/j.dib.2019.103918. eCollection 2019 Jun.
84. Conti E, Allegra Mascaro AL, Pavone FS. *Large Scale Double-Path Illumination System with Split Field of View for the All-Optical Study of Inter-and Intra-Hemispheric Functional Connectivity on Mice*. *Methods Protoc*. 2019 Jan 29;2(1). pii: E11. doi: 10.3390/mps2010011.
85. Giardini F, Biasci V, Scardigli M, Pavone FS, Bub G, Sacconi L. *A Software Architecture to Mimic a Ventricular Tachycardia in Intact Murine Hearts by Means of an All-Optical Platform*. *Methods Protoc*. 2019 Jan 8;2(1). pii: E7. doi: 10.3390/mps2010007.
86. Mercatelli R, Mattana S, Capozzoli L, Ratto F, Rossi F, Pini R, Fioretto D, Pavone FS, Caponi S, Cicchi R. *Morpho-mechanics of human collagen superstructures revealed by all-optical correlative micro-spectroscopies*. *Commun Biol*. 2019 Mar 26;2:117. doi: 10.1038/s42003-019-0357-y. eCollection 2019.
87. Crocini C, Ferrantini C, Coppini R, Pavone FS, Poggesi C, Cerbai E, Sacconi L. *Letter to the Editor*. *J Physiol*. 2019 Jun;597(11):2965-2966. doi: 10.1113/JP278018. Epub 2019 Apr 14.
88. Müllenbroich MC, Turrini L, Silvestri L, Alterini T, Gheisari A, Tiso N, Vanzi F, Sacconi L, Pavone FS. *Corrigendum: Bessel Beam Illumination Reduces Random and Systematic Errors in Quantitative*

- Functional Studies Using Light-Sheet Microscopy*. Front Cell Neurosci. 2019 Feb 22;13:25. doi: 10.3389/fncel.2019.00025. eCollection 2019.
89. H. Kubotera, H. Ikeshima-Kataoka, Y. Hatashita, A.L. Allegra Mascaro, F.S. Pavone, T. Inoue, *Astrocytic endfeet re-cover blood vessels after removal by laser ablation*, Scientific Reports, Vol. 9, Issue 1, Article number 1263, 1 December 2019.
  90. N. Pianca, A. Di Bona, E. Lazzeri, I. Costantini, M. Franzoso, V. Prando, A. Armani, S. Rizzo, M. Fedrigo, A. Angelini, C. Basso, F.S. Pavone, M. Rubart, L. Sacconi, T. Zaglia, M. Mongillo, *Cardiac sympathetic innervation network shapes the myocardium by locally controlling cardiomyocyte size through the cellular proteolytic machinery*, Journal of Physiology, Vol. 597, Issue 14, pp. 3639-3656, 15 July 2019.
  91. A. Marino, E. Almici, S. Migliorin, C. Tapeinos, M. Battaglini, V. Cappello, M. Marchetti, G. De Vito, R. Cicchi, F.S. Pavone, G. Ciofani, *Piezoelectric barium titanate nanostimulators for the treatment of glioblastoma multiforme*, Journal of Colloid and Interface Science, Vol. 538, pp 449-461, 7 March 2019.
  92. C. Ferrantini, J.M. Pioner, D. Martella, R. Coppini, N. Piroddi, P. Paoli, M. Calamai, F.S. Pavone, D.S. Wiersma, C. Tesi, E. Cerbai, C. Poggesi, L. Sacconi, C. Parmeggiani, *Development of Light-Responsive Liquid Crystalline Elastomers to Assist Cardiac Contraction*, Circulation Research, 12 April 2019.
  93. A.P. Di Giovanna, C. Credi, A. Franceschini, M.C. Muellenbroich, L. Silvestri, F.S. Pavone, *Tailored sample mounting for light-sheet fluorescence microscopy of clarified specimens by polydimethylsiloxane casting*, Frontiers in Neuroanatomy, Vol. 13, Art. n. 35, 18 February 2019.
  94. E. Montagni, F. Resta, E. Conti, A. Scaglione, M. Pasquini, M. Micera, A.L. Allegra Mascaro, F.S. Pavone, *Wide-field imaging of cortical neuronal activity with red-shifted functional indicators during motor task execution*, Journal of Physics D: Applied Physics, Vol. 52, Issue 7, Art. n. 074001, 13 February 2019.
  95. G. Sancataldo, V. Gavryusev, G. De Vito, L. Turrini, M. Locatelli, C. Fornetto, N. Tiso, F. Vanzi, L. Silvestri, F.S. Pavone, *Flexible multi-beam light-sheet fluorescence microscope for live imaging without striping artifacts*, Frontiers in Neuroanatomy, Vol. 13, Article number 7, February 2019.
  96. M. Calamai, F.S. Pavone, *Quantifying the Proteolytic Cleavage of Plasma Membrane Proteins in Living Cells*, Current Protocols in Cell Biology, Vol. 81, Issue 1, December 2018.
  97. A. P. Di Giovanna, A. Tibo, L. Silvestri, C. Mullenbroich, I. Costantini, A.L. Allegra Mascaro, L. Sacconi, P. Frascioni, F.S. Pavone, *Whole-brain vasculature reconstruction at the single capillary level*, Scientific Reports, Vol. 8, issue 1, pp. 12573, December 2018.
  98. E. Baria, G. Nesi, R. Santi, V. Maio, D. Massi, C. Pratesi, R. Cicchi, F.S. Pavone, *Improved label-free diagnostics and pathological assessment of atherosclerotic plaques through nonlinear microscopy*, Journal of Biophotonics, Journal of Biophotonics, Vol. 11, Issue 11, November 2018.
  99. M. C. Müllenbroich, L. Silvestri, A. P. Di Giovanna, G. Mazzamuto, I. Costantini, L. Sacconi, F.S. Pavone, *High-fidelity imaging in brain-wide structural studies using light-sheet microscopy*, eNeuro, Vol. 5, Issue 6, p. 1-13, 1 November 2018.
  100. M. Scardigli, C. Ferrantini, C. Crocini, F.S. Pavone, L. Sacconi, *Interplay between sub-cellular alterations of calcium release and T-tubular defects in cardiac diseases*, Frontiers in Physiology, Vol. 9, Art. N. 1474, 25 October 2018.
  101. M. Brandenburg, J. Pawlowitz, F. E. Fakuade, T. Kohl, G. Y. Mitronova, M. Scadigli, J. Neef, C. Schmidt, F. Wiedmann, F.S. Pavone, L. Sacconi, I. Kutschka, S. Sossalla, T. Moser, S. E. Lehnart, *Axial tubule junctions activate atrial Ca<sup>2+</sup> release across species*, Frontiers in Physiology, Vol. 9, Art. N. 1227, 9 October 2018.
  102. M. C. Müllenbroich, L. Turini, L. Silvestri, T. Alterini, A. Gheisari, F. Vanzi, L. Sacconi, F.S. Pavone, *Bessel Beam Illumination Reduces Random and Systematic Errors in Quantitative Functional Studies Using Light-Sheet Microscopy*, Frontiers in Cellular Neuroscience, Vol. 12, 20 September 2018
  103. M. Scardigli, M. C. Müllenbroich, C. Margoni, E. Cannazzaro, C. Crocini, C. Ferrantini, R. Coppini, P. Yan, L. M. Loew, M. Campione, L. Bocchi, D. Giulietti, E. Cerbai, C. Poggesi, G. Bub, F.S. Pavone, L. Sacconi, *Real-time optical manipulation of cardiac conduction in intact hearts*, The Journal of Physiology, Vol. 596, pp. 3841-3858, September 2018.

104. L. Gardini, S. M. Heissler, C. Arbore, Y. Yang, J. R. Sellers, F.S. Pavone, M. Capitanio, *Dissecting myosin-5B mechanosensitivity and calcium regulation at the single molecule level*, Nature Communications, Vol. 9, pp. 2844, 20 July 2018.
105. A. Sosa-Costa, I. K. Piechoka, L. Gardini, F.S. Pavone, M. Capitanio, M. Garcia-Parajo, C. Manzo, *PLANT: A Method for Detecting Changes of Slope in Noisy Trajectories*, Vol. 114, Issue 9, pp. 2044-2051, 8 May 2018.
106. I. E. Bjerke, M. øvsthus, E. A. Papp, S. C. Yates, L. Silvestri, J. Fiorilli, C.M.A. Pennartz, F.S. Pavone, M.A. Puchades, T.B. Leergaard, J.G. Bjaalie, *Data integration through brain atlasing: Human Brain Project tools and strategies*, Eur Psychiatry, Vol. 50, pp. 70-76, April 2018.
107. A. Tempestini, C. Monico, L. Gardini, F. Vanzi, F. Pavone, M. Capitanio, *Sliding of a single lac repressor protein along DNA is tuned by DNA sequence and molecular switching*, Nucleic Acids Research, DOI: 10.1093/nar/gky208, pp. 1-11, 23 March 2018.
108. P. Campagnola, D. Cote, F.S. Pavone, P. Reece, V. J. Srinivasan, T. Tkaczyk, G. Volpe, *Biophotonics Feature: introduction*, Biomedical Optics Express, Vol. 9, Issue 3, pp. 1229-1231, 1 March 2018.
109. M. P. Adam, M. C. Müllenbroich, A. P. Di Giovanna, D. Alfieri, L. Silvestri, L. Sacconi, F. S. Pavone, *Confocal multispot microscope for fast and deep imaging in semicleared tissues*, Journal of Biomedical Optics, Vol. 23, Issue 2, Art. N. 020503, DOI: 10.1117/1.JBO.23.2.020503, 1 February 2018.
110. S. Guo, S. Pfeifenbring, T. Meyer, G. Ernst, F. Von Eggeling, V. Maio, D. Massi, R. Cicchi, F.S. Pavone, J. Popp, T. Bocklitz, *Multimodal image analysis in tissue diagnostic for skin melanoma*, Journal of Chemometrics, Vol. 32, Issue 1, p. e2963, DOI: 10.1002/cem.2963, January 2018.
111. C. Crocini, C. Ferrantini, F. S. Pavone, L. Sacconi, *Optogenetics gets to the heart: a guided light beyond defibrillation*, Progress in Biophysics and Molecular Biology, Vol. 130, pp. 132-139, DOI:10.1016/j.pbiomolbio.2017.05.002, November 2017.
112. S. Anand, R. Cicchi, F. Giordano, V. Conti, A. M. Buccoliero, R. Guerrini, F. S. Pavone, *Multimodal fiber-scope spectroscopy allow detecting epileptogenic focal cortical dysplasia in children*, Journal of Biophotonics, Vol. 10, Issue 6, pp. 896-904, DOI: 10.1002/jbio.201600136, June 2017.
113. L. Turrini, C. Fornetto, G. Marchetto, M. C. Müllenbroich, N. Tiso, A. Vettori, F. Resta, A. Masi, G. Mannaioni, F. S. Pavone, F. Vanzi, *Optical mapping of neuronal activity during seizures in zebrafish*, Scientific Reports, Vol. 7, art. n. 3025, DOI:10.1038/s41598-017-03087-z, 8 June 2017.
114. M. Scardigli, C. Crocini, C. Ferrantini, T. Gabbrielli, L. Silvestri, R. Coppini, C. Tesi, E. A. Rog-Zielinska, P. Kohl, E. Cerbai, C. Poggesi, F. S. Pavone, L. Sacconi, *Quantitative assessment of passive electrical properties of the cardiac T-tubular system by FRAP microscopy*, Proc. Nat. Acc. Sci. (PNAS), Vol. 114, Issue 22, pag. 5737-5742, Doi:10.1073/pnas.1702188114, 30 May 2017.
115. N. Parenti, A. D. Grosso, C. Antoni, M. Cecchini, R. Corradetti, F. S. Pavone, M. Calamai, *Direct imaging of APP proteolysis in living cells*, PeerJ, Vol. 2017, Issue 4, Art. Number e3086, DOI: 10.7717/peerj.3086, 12 April 2017.
116. R. Mercatelli, F. Ratto, F. Rossi, F. Tatini, L. Menabuoni, A. Malandrini, R. Nicoletti, R. Pini, F.S. Pavone, R. Cicchi, *Three-dimensional mapping of the orientation of Collagen corneal lamellae in healthy and keratoconic human corneas using SHG microscopy*, Journal of Biophotonics, Vol. 10, Issue 1, p. 75-83, DOI: 10.1002/jbio.201600122, 1 January 2017.
117. C. Crocini, C. Ferrantini, R. Coppini, M. Scardigli, P. Yan, L.M. Loew, G. Smith, E. Cerbai, C. Poggesi, F. S. Pavone, L. Sacconi, *Optogenetics design of mechanistically-based stimulation pattern for cardiac defibrillation*, Scientific Reports-Nature, Vol. 6, Art. N. 35628, DOI: 10.1038/srep35628, 17 October 2016.
118. C. Crocini, C. Ferrantini, R. Coppini, M. Scardigli, P. Yan, L.M. Loew, G. Smith, E. Cerbai, C. Poggesi, F. S. Pavone, L. Sacconi, *T-tubular electrical defects contribute to blunted  $\beta$ -adrenergic response in heart failure*, International Journal of Molecular Sciences, Vol. 17, Issue 9, Art. N. 1471, DOI: 10.3390/ijms17091471, 3 September 2016.
119. Y. K. Cho, G. Zheng, G. J. Augustine, D. Hochbaum, A. Cohen, T. Knopfel, F. Pisanello, F. S. Pavone, I. M. Vellekoop, M. J. Booth, S. Hu, J. Zhu, Z. P. Chen, Y. Hoshi, *Roadmap on*

- neurophotonics*, Journal of Optics, Vol. 18 Issue 9, DOI: 10.1088/2040-8978/18/9/093007, 2016, September ([full text](#))
120. L. Silvestri, I. Costantini, L. Sacconi, F.S. Pavone, *Clearing of fixed tissue: a review from a microscopist's perspective*, Journal of Biomedical Optics, Volume 21, Issue 8, Article number 081205, 10.1117/1.JBO.21.8.0812051, August 2016.
  121. M. Leri, F. Bemporad, R. Oropesa-Nunez, C. Canale, M. Calamai, D. Nosi, M. Ramazzotti, S. Giorgetti, F. S. Pavone, V. Bellotti, M. Stefani, M. Bucciantini, *Molecular insights into cell toxicity of a novel familial amyloidogenic variant of  $\beta$ 2-microglobulin*, Journal of Cellular and Molecular Medicine, Vol. 20, Issue 10, p. 1 - 14, 2016, 10 February.
  122. R. Cicchi, F. Rossi, D. Alfieri, S. Bacci, F. Tatini, G. De Siena, G. Paroli, R. Pini, F. S. Pavone, *Observation of an improved healing process in superficial skin wounds after irradiation with a blue-LED haemostatic device*, Journal of Biophotonics, Vol. 9, Issue 6, p. 645-655, 2016, June.
  123. C. Crocini, C. Ferrantini, M. Scardigli, R. Coppini, L. Mazzoni, E. Lazzeri, J. M. Pioner, B. Scellini, A. Guo, L. S. Song, P. Yan, L. M. Loew, C. Tesi, F. Vanzi, E. Cerbai, F. S. Pavone, L. Sacconi, C. Poggesi, *Novel insights on the relationship between T-tubular defects and contractile dysfunction in a mouse model of hypertrophic cardiomyopathy*, Journal of Molecular and Cellular Biology, Vol. 91, p. 42-51, 2016, 1 February.
  124. M. Calamai, E. Evangelisti, R. Cascella, N. Parenti, C. Cecchi, M. Stefani, F. S. Pavone, *Single molecule experiments emphasize GM1 as a key player of the different cytotoxicity of structurally distinct  $A\beta$ 1-42 oligomers*, Biochimica et Biophysica Acta: Biomembranes, Vol. 1858, Issue 2, pp. 386-392, 2016, 1<sup>o</sup> February.
  125. A. L. Allegra Mascaro, L. Sacconi, L. Silvestri, G. Knott, F. S. Pavone, *Multi-modal optical imaging of cerebellum in animals*, Cerebellum, Vol. 15, Issue 1, pp. 18-22, DOI: 10.1007/s12311-015-0730-4, 2016, 1<sup>o</sup> February.
  126. F. S. Pavone, E. Hillman, F. Leblond, S. Shoham, *Introduction to the optics and the brain 2015 feature issue*, Biomedical optics Express, Vol. 6, Issue 12, pp. 4992-3, doi: 10.1364/BOE.6.004992, 2015, 20 November.
  127. L. Gardini, M. Capitanio, F. S. Pavone, *3D tracking of single nanoparticles and quantum dots in living cells by out-of-focus imaging with diffraction pattern recognition*, Scientific Reports – Nature, Vol. 5, article number: 16088, doi: 10.1038/srep16088, 2015, 3 November.
  128. A. L. Mascaro, I. Costantini, E. Margoni, G. Iannello, A. Bria, L. Sacconi, F. S. Pavone, *Label-free near-infrared reflectance microscopy as a complimentary tool for two photon fluorescence brain imaging*, Biomedical Optics Express, Vol. 6, Issue 11, Art. Number 244279, pp. 4483 – 4492, DOI: 10.1364/BOE.6.004483, 2015, 21 October.
  129. M. Locatelli, M. Ravaro, S. Bartalini, S. Consolino, M. S. Vitiello, R. Cicchi, F. S. Pavone, P. De Natale, *Real-time terahertz digital holography with a quantum cascade laser*, Scientific Reports – Nature, Vol. 5, Art. n. 13566, doi:10.1038/srep13566, 2015, August 28.
  130. I. Costantini, J. P. Ghobril, A. P. Di Giovanna, A. L. Allegra Mascaro, L. Silvestri, M. C. Mullenbroich, L. Onofri, V. Conti, F. Vanzi, L. Sacconi, R. Guerrini, H. Markram, G. Iannello, F. S. Pavone, *A versatile clearing agent for multi-modal brain imaging*, Scientific Reports – Nature, Vol. 5, Art. N. 9808, DOI: 10.1038/srep09808, 2015, May.
  131. L. Silvestri, M. Paciscopi, P. Soda, F. Biamonte, G. Iannello, P. Frascioni, F. S. Pavone, *Quantitative neuroanatomy of all purkinje cells with light sheet microscopy and high-throughput image analysis*, Frontiers in neuroanatomy, Volume 9, Art. N. 68, 2015, 27 May.
  132. G. Borile, C. De Mauro, A. Urbani, D. Alfieri, F. S. Pavone, M. Mongillo, *Multispot multiphoton  $Ca^{2+}$  imaging in acute myocardial slices*, Journal of Biomedical Optics, Volume 20, Issue 5, Art. n. 051016, 2015, 1<sup>o</sup> May.
  133. R. Cicchi, E. Baria, C. Matthaus, M. Lange, A. Latterman, B. R. Brehm, J. Popp, F. S. Pavone, *Non-linear imaging and characterization of atherosclerotic arterial tissue using combined SHG and FLIM microscopy*, Journal of Biophotonics, Vol. 8, Issue 4, pp.347-356, 2015, 1<sup>o</sup> April.
  134. A. L. Allegra Mascaro, L. Silvestri, L. Sacconi, F. S. Pavone, *Towards a comprehensive understanding brain machinery by correlative microscopy*, Journal of Biomedical Optics, Vol. 20, Issue 6, p. 061105, 2015, March 6.

135. R. Cicchi, D. Kapsokalyvas, F. S. Pavone, *Clinical non linear laser imaging of human skin: a review*, BioMed Research international, Vol. 2014, Art. N. 903589, DOI: 10.1155/2014/903589, 2014.
136. R. Cicchi, F. S. Pavone, *Multimodal non linear microscopy: a powerful label-free method for supporting standard diagnostics on biological tissues*, Journal of Innovative health sciences, Vol. 7, Issue 5, Art. N. 133008, DOI: 10.1142/S1793545813300085, 2014, 22 September.
137. S. Anand, R. Cicchi, F. Giordano, A.M. Buccoliero, R. Guerrini, F.S. Pavone, *Bimodal spectroscopy of formalin fixed samples to discriminate dysplastic and tumor brain tissues*, Latvian Journal of Physics and Technical Sciences, Vol. 51, Issue 5, pp. 14-20, DOI: 10.2478/lpts-2014-0027, 2014, 1° October.
138. C. Matthaus, R. Cicchi, T. Meyer, A. Lattermann, M. Schmitt, B.F.M. Romeike, C. Krafft, B. Dietzek, B.R. Brehm, F.S. Pavone, J. Popp, *Multimodal nonlinear imaging of atherosclerotic plaques differentiation of triglyceride and cholesterol deposits*, Journal of Innovative Optical Health Sciences, Vol. 7, Issue 5, Art. N. 1450027, DOI: 10.1142/S1793545814500278, 2014, 22 September.
139. C. Monico, G. Belcastro, F. Vanzi, F. S. Pavone, M. Capitanio, *Combining Single-molecule Manipulation and Imaging for the Study of Protein-DNA Interactions*, Journal of Visualized Experiments, Issue 90, e51446, 2014, August 27.
140. A. L. Allegra Mascaro, L. Sacconi, F. S. Pavone, *Laser Nanosurgery of Cerebellar Axons in Vivo*, Jove, n. 89, e51371, pp 1-8, 2014, July 28.
141. M. Asllani, J. D. Challenger, F. S. Pavone, L. Sacconi, D. Fanelli, *The theory of pattern formation on directed networks*, Nature Communications, Vol. 5, p. 4517, DOI: 10.1038/ncomms5517, 2014, July 31.
142. C. Crocini, R. Coppini, C. Ferrantini, F. S. Pavone, L. Sacconi, *Functional cardiac imaging by random access microscopy*, Frontiers in Physiology, Vol. 5, Art. 403, pp. 1-6, 2014, October 20.
143. C. Crocini, R. Coppini, C. Ferrantini, P. Yan, L. M. Loew, C. Tesi, E. Cerbai, C. Poggesi, F. S. Pavone, L. Sacconi, *Defects in T-tubular electrical activity underlie local alterations of calcium release in heart failure*, Proc. Nat. Acc. Sci. of U.S.A. (PNAS), Vol. 111, n. 42, pp. 15196 -201, 2014, October 21.
144. D. Kapsokalyvas, R. Cicchi, N. Bruscano, D. Alfieri, F. Prignano, D. Massi, T. Lotti, F. S. Pavone, *In-vivo imaging psoriatic lesions with polarization multispectral dermoscopy and multiphoton microscopy*, Biomedical Optics Express, Vol. 5, Issue 7, pp.2405-2419, DOI: 10.1364/BOE.5.002405, 2014, 1 June.
145. C. Ferrantini, R. Coppini, L. Sacconi, B. Tosi, M. L. Zhang, G. L. Wang, E. de Vries, E. Hoppenbrouwers, F. S. Pavone, E. Cerbai, C. Tesi, C. Poggesi, H. E. D. J. Ter Keurs, *Impact of detubulation on force and kinetics of cardiac muscle contraction*, The Journal of general Physiology, Vol. 143, Issue 6, pp. 783-797, DOI: 10.1085/jgp.201311125, 2014, May 26.
146. L. Silvestri, A. L. Allegra Mascaro, I. Costantini, L. Sacconi, F. S. Pavone, *Correlative two-photon and light sheet microscopy*, Methods, Vol. 66, Issue 2, pp. 268-272, 2014, March 15.
147. R. Cicchi, C. Matthäus, T. Meyer, A. Lattermann, B. Dietzek, B. R. Brehm, J. Popp, F. S. Pavone, *Characterization of collagen and cholesterol deposition in atherosclerotic arterial tissue using non-linear microscopy*, Journal of Biophotonics, Vol. 7, Issue 1-2, pp. 135-143, 2014, January.
148. L. Silvestri, L. Sacconi, F. S. Pavone, *Correcting spherical aberrations in confocal light sheet microscopy: A theoretical study*, Microscopy Research and Technique, Vol. 77, Issue 7, pp. 483-491, DOI: 10.1002/jemt.22330, 2014, January 3.
149. R. Cicchi, D. Kapsokalyvas, M. Troiano, P. Campolmi, C. Morini, D. Massi, G. Cannarozzo, T. Lotti, F. S. Pavone, *In vivo non-invasive monitoring of collagen remodelling by two-photon microscopy after micro-ablative fractional laser resurfacing*, Journal of Biophotonics, Vol. 6, issue 11/12, 2013, December 11.
150. L. Silvestri, A. Bria, I. Costantini, L. Sacconi, H. Peng, G. Iannello, F.S. Pavone, *Micron-scale resolution optical tomography of entire mouse brains with confocal light sheet microscopy*, Journal of Visualized Experiments, p. 80, 2013, 1° October.
151. B. Bisel, M. Calamai, F. Vanzi, F. S. Pavone, *Decoupling Polarization of the Golgi Apparatus and GM1 in the Plasma Membrane*, Plos ONE, Vol. 8, Issue 12, art. Numb. e80446, 2013, December 2.

152. C. Ferrantini, C. Crocini, R. Coppini, F. Vanzi, C. Tesi, E. Cerbai, C. Poggesi, F. S. Pavone, L. Sacconi, *The transverseaxial tubular system of cardiomyocytes*, Cellular and Molecular Life Sciences, Vol. 70, Issue 24, pp. 1-16, 2013, December.
153. M. Capitanio, F. S. Pavone, *Interrogating biology with force: Single molecule high-resolution measurements with optical tweezers*, Biophysical Journal, Vol. 105, Issue 6, Pages 1293-1303, 2013, September 17.
154. L. Silvestri, L. Sacconi, F. S. Pavone, *The connectomics challenge*, Functional Neurology, Vol. 28, Issue 3, pp. 167-173, 2013, July.
155. R. Cicchi, A. Sturiale, G. Nesi, D. Kapsokalyvas, G. Alemanno, F. Tonelli, F. S. Pavone, *Multiphoton morpho-functional imaging of healthy colon mucosa, adenomatous polyp and adenocarcinoma*, Biomed Opt. Express, Vol. 4, n. 7, pp. 1204-13, 2013, June 24.
156. A. L. Allegra Mascaro, P. Cesare, L. Sacconi, G. Grasselli, G. Mandolesi, B. Macof, G. W. Knottf, L. Huangg, V. De Paolag, P. Stratab, F. S. Pavone, *In vivo single branch axotomy induces GAP-43-dependent sprouting and synaptic remodeling in cerebellar*, Proc. Nat. Acc. Sci. U.S.A., Vol. 110, Issue 26, pp. 10824-10829, DOI: 10.1073/pnas.1219256110, 2013, June 25.
157. M. Calamai, F. S. Pavone, *Partitioning and confinement of GM1 ganglioside induced by amyloid aggregates*, FEBS Letters, Vol. 587, n. 9, pp. 1385-1391 DOI: 10.1016/j.febslet.2013.03.014, 2013, May 2.
158. E. Scotti, M. Calamai, C. N. Goulbourne, L. Zhang, C. Hong, J. Choi, P. F. Pilch, L. G. Fong, P. Zou, A. Y. Ting, F. S. Pavone, S. G. Young, *IDOL stimulates clathrin endocytosis and Multivesicular Body-Mediated lysosomal degradation of the low-density lipoprotein receptor*, Molecular and Cellular Biology, Vol. 33, N. 8, pp. 1503-1514, 2013, April.
159. A. L. Allegra Mascaro, L. Silvestri, L. Sacconi, F. S. Pavone, *Breakthroughs in Photonics 2012: Nonlinear Laser Imaging for Neuroscience*, IEEE Photonics Journal, Vol. 5, n. 2, DOI: 10.1109/JPHOT.2013.2250941, 2013, April.
160. D. Kapsokalyvas, N. Bruscano, D. Alfieri, V. de Giorgi, G. Cannarozzo, R. Cicchi, D. Massi, N. Pimpinelli, F. S. Pavone, *Spectral morphological analysis of skin lesions with a polarization multispectral dermoscope*, Opt. Express, Vol. 21, pp. 4826-4840, DOI: 10.1364/OE.21.004826, 2013, February 25.
161. R. Cicchi, A. Cosci, S. Rossari, D. Kapsokalyvas, E. Baria, V. Maio, D. Massi, V. De Giorgi, N. Pimpinelli, F. S. Pavone, *Combined fluorescence-Raman spectroscopic setup for the diagnosis of melanocytic lesions*, Journal of Biophotonics, Vol. 7, Issue 2, pp. 86-95, DOI 10.1002/jbio.201200230, 2013, February 8.
162. R. Cicchi, N. Volger, D. Kapsokalyvas, B. Dietzek, J. Popp, F. S. Pavone, *From molecular structure to tissue architecture: Collagen organization probed by SHG microscopy*, Journal of Biophotonics, Vol. 6, n. 2, pp. 129-142, 2013 February.
163. C. Monico, M. Capitanio, G. Belcastro, F. Vanzi, F. S. Pavone, *Optical methods to study protein-DNA interactions in vitro and in living cells at the single-molecule level*, International Journal of Molecular Sciences, Vol. 14, n. 2, pp. 3961-3992, 2013, February 18.
164. C. Laperchia, A. L. Allegra Mascaro, L. Sacconi, A. Andrioli, A. Mattè, L. De Franceschi, G. Grassi Zucconi, M. Bentivoglio, M. Buffelli, F. S. Pavone, *Two-photon microscopy imaging of thylGFP-M transgenic mice: a novel animal model to investigate brain dendritic cell subsets in vivo*, Plos one, Vol. 8, n. 2, art. N. 56144, DOI: 10.1371/journal.pone.0056144, 2013, February 7.
165. M. Capitanio, M. Canepari, M. Maffei, C. Monico, G. Belcastro, F. Vanzi, R. Bottinelli, F. S. Pavone, *Ultrafast Force-Clamp Spectroscopy of Single Molecular Motors and DNA Binding Proteins*, Biophysical Journal, Vol. 104, Issue 2, p. 516 A, 2013, January 29.
166. C. Monico, M. Capitanio, G. Belcastro, F. Vanzi, F. S. Pavone, *Lac Repressor-DNA Interactions assessed by Ultrafast Force-Clamp Spectroscopy*, Biophysical Journal, Vol. 104, Issue 2, p. 417A, 2013, January 29.
167. G. Belcastro, C. Monico, M. Capitanio, F. Vanzi, F. S. Pavone, *Single Molecule Tracking of Lac Repressor Diffusing on Stretched DNA*, Biophysical Journal, Vol. 104, Issue 2, p. 417A, 2013, 29 January.
168. L. Gardini, M. Capitanio, F. Vanzi, F. S. Pavone, *A Platform for 3D Tracking of Single Molecules in Living Cells*, Biophysical Journal, Vol. 104, Issue 2, p. 526A, 2013, 29 January.

169. L. Silvestri, A. L. Allegra Mascaro, L. Sacconi, F. S. Pavone, *Advanced optical techniques to explore brain structure and function*, Journal of Innovative Optical Health Sciences, Vol. 6, n. 1, pp. 1230002-1230017, DOI: 10.1142/S1793545812300029, 2013, January 31.
170. P. Yan, C. D. Acker, W. Zhou, P. Lee, C. Bollensdorff, A. Negrean, J. Lotti, L. Sacconi, S. D. Antic, P. Kohl, H. D. Mansvelder, F. S. Pavone, L. Loew, *Palette of fluorinated voltage-sensitive hemicyanine dyes*, Proc. Nat. Acc. Sci. U.S.A., Vol. 109, n. 50, pp. 20443-48, DOI: 10.1073/pnas.1214850109, 2012, December 11.
171. M. Capitanio, M. Canepari, M. Maffei, D. Beneventi, C. Monico, F. Vanzi, R. Bottinelli, F. S. Pavone, *Ultrafast force-clamp spectroscopy of single molecules reveals load dependence of myosin working stroke*, Nature Methods 9, Vol. 9, n. 10, pp. 1013–1019, DOI: 10.1038/nmeth.2152, 2012, October.
172. P. Matteini, R. Cicchi, F. Ratto, D. Kapsokalyvas, F. Rossi, M. De Angelis, F. S. Pavone, R. Pini, *Thermal transitions of fibrillar collagen unveiled by second-harmonic generation microscopy of corneal stroma*, Biophysical Journal, Vol. 103, n. 6, pp. 1179-1187, 2012 September 19.
173. C. Matthaus, R. Cicchi, S. Dochow, C. Krafft, A. Lattermann, B. R. Brehm, F. S. Pavone, J. Popp, *Characterization of atherosclerotic plaque depositions in vivo by fiber-optic raman spectroscopy and ex-vivo by FTIR, raman and non-linear imaging techniques*, Biomedical Engineering-Biomedizinische technik, Vol. 58, 2012, September.
174. L. Silvestri, A. Bria, L. Sacconi, G. Iannello, F.S. Pavone, *Confocal light sheet microscopy: micron-scale neuroanatomy of the entire mouse brain*, Optic Express, Vol. 20, pp. 20582-98, DOI: 10.1364/OE.20.020582, 2012, August 27.
175. F. Vanzi, L. Sacconi, R. Cicchi, F. S. Pavone, *Protein conformation and molecular order probed by second-harmonic generation microscopy*, Journal of Biomedical Optics, Vol. 17, Issue 6, Art. N. 060901, 2012, June.
176. L. Sacconi, C. Ferrantini, J. Lotti, R. Coppini, P. Yan, L. M. Loew, C. Tesi, E. Cerbai, C. Poggese, F. S. Pavone, *Action potential propagation in transverse-axial tubular system is impaired in heart failure*, Proc. Nat. Acc. Sci. U.S.A., pp. 5815-5819, DOI: 10.1073/pnas.1120188109, 2012, March 26.
177. R. Elangovan, M. Capitanio, L. Melli, F. S. Pavone, V. Lombardi, G. Piazzasi, *An integrated in vitro and in situ study of Kinetics of myosin II from frog skeletal muscle*, J. Physiol, Vol. 590, n. 5, 1227-1242, 2012, February.
178. M. Bucciantini, D. Nosi, M. Forzan, E. Russo, M. Calamai, L. Pieri, L. Formigli, F. Quercioli, S. Soria, F. S. Pavone, J. Savistchenko, R. Melki, M. Stefani, *Toxic effects of amyloid fibrils on cell membranes: the importance of ganglioside GM1*, FASEB J., Vol. 26, Issue 2, pp. 818-831, 2012, February 9.
179. M. Calamai, F. S. Pavone, *Single molecule tracking analysis reveals that the surface mobility of amyloid oligomers is driven by their conformational structure*, J. Am. Chem. Soc., Vol. 133, Issue 31, pp. 12001-12008, DOI: 10.1021/ja200951f, 2011, August 10.
180. T. Del Rosso, E. Giorgetti, G. Margheri, A. Rindi, M. Muniz-Miranda, A. Carloni, F. S. Pavone, P. Fabbrizzi, S. Cicchi, *Cu<sup>2+</sup> chemosensing behaviour of self-organized micro-array structures of a donor-acceptor Bichromophoric compound anchored onto Ag nanoisland films*, Sens. Actuators B: Chem., Vol. 55, Issue 1, pp. 46-52, DOI:10.1016/j.snb.2010.11.021, 2011, July 5.
181. R. Cicchi, F. S. Pavone, *Non-linear fluorescence lifetime imaging of biological tissues*, Anal. Bioanal. Chem., Vol. 400, n. 9, pp. 2687-2697, 2011, July.
182. A. L. Allegra Mascaro, L. Sacconi, F. S. Pavone, *Multi-photon nanosurgery in live brain*, Front. Neuroenerg., vol. 2, p. 21, DOI: 10.3389/fnene.2010.00021, 2010, July 30.
183. V. Nucciotti, C. Stringari, L. Sacconi, F. Vanzi, L. Fusi, M. Linari, G. Piazzesi, V. Lombardi, F. S. Pavone, *Probing myosin structural conformation in vivo by second-harmonic generation microscopy*, Proc. Natl. Acad. Sci. U. S. A., Vol. 107, Issue 17, pp. 7763-68, DOI: 10.1073/pnas.0914782107, Epub, 2010, April 12.
184. A. Masi, R. Cicchi, A. Carloni, F. S. Pavone, A. Arcangeli, *Optical Methods in the Study of Protein-Protein Interactions*, Advances in Experimental Medicine and Biology, Vol. 674, Pg: 33-42, 2010.

185. R. Cicchi, D. Kapsokalyvas, V. De Giorgi, V. Maio, A. Van Wiechen, D. Massi, T. Lotti, F. S. Pavone, *Scoring of collagen organization in healthy and diseased human dermis by multiphoton microscopy*, J. Biophoton., Vol. 3, Issue 1, pp. 34-43, 2010.
186. R. Cicchi, A. Crisci, A. Cosci, G. Nesi, D. Kapsokalyvas, S. Giancane, M. Carini, F. S. Pavone, *Time- and spectral-resolved two-photon imaging of healthy bladder mucosa and carcinoma-in-situ*, Opt. Express, Vol. 18, pp. 3840-3849, 2010, February 15.
187. D. Rutkauskas, H. Zhan, K. S. Matthews, F. S. Pavone, F. Vanzi, *Tetramer opening in LacI-mediated DNA looping*, Proc. Natl. Acad. Sci. U S A., Vol. 106, Issue 39, pp. 16627-32, DOI: 10.1073/pnas.0904617106, 2009, September 29.
188. P. Matteini, F. Ratto, F. Rossi, R. Cicchi, C. Stringari, D. Kapsokalyvas, F. S. Pavone, R. Pini, *Photothermally-induced disordered patterns of corneal collagen revealed by SHG imaging*, Optics Express, Vol. 17, n. 6, pp. 4868-4878, 2009, March 16.
189. V. De Giorgi, D. Massi, S. Sestini, R. Cicchi, F. S. Pavone, T. Lotti, *Combined non linear- laser imaging (two-photon excitation fluorescence microscopy, fluorescence lifetime imaging microscopy, multispectral multiphoton microscopy) in cutaneous tumours: first experiences*, J. Euro. Acad. Derm. & Ven., Vol. 23, Issue 3, pp. 314-316, 2009, January 19.
190. A. G. Mignani, L. Ciaccheri, A. A. Mencaglia, N. Díaz-Herrera, P. B. García-Allende, H. Ottevaere, H. Thienpont, C. Attilio, A. Cimato, S. Francalanci, A. Paccagnini, F. S. Pavone, *Optical spectral signatures of liquids by means of fiber optic technology for product and quality parameter identification*, Journal of the European Optical Society - Rapid Publications, Vol. 4, p. 09005, 2009.
191. A. G. Mignani, L. Ciaccheri, N. Díaz-Herrera, A. A. Mencaglia, H. Ottevaere, H. Thienpont, S. Francalanci, A. Paccagnini, F. S. Pavone, *Optical fiber spectroscopy for measuring quality indicators of lubricant oils*, Meas. Sci. Technol. Vol. 20, n. 3, p. 034011, 2009.
192. S. Cabodi, V. Morello, A. Masi, R. Cicchi, C. Broggio, P. Distefano, E. Brunelli, L. Silengo, F. S. Pavone, A. Arcangeli, E. Turco, G. Tarone, L. Moro, P. Defilippi. *Convergence of integrins and EGF receptor signaling via PI3K/Akt/FoxO pathway in early gene Egr-1 expression*. J. Cell. Physiol., Vol. 218, Issue 2, pp. 294-303, 2009.
193. R. Cicchi, S. Sestini, V. De Giorgi, D. Massi, T. Lotti, F. S. Pavone, *Non-linear laser imaging of skin lesions*, J. Biophotonics, Vol. 1, pp. 62-73, 2008.
194. D. Normanno, F. Vanzi, F. S. Pavone, *Single-molecule manipulation reveals supercoiling-dependent modulation of lac repressor-mediated DNA looping*, Nucleic Acids Res., Vol. 36, Issue 8, pp. 2505-13, 2008, June.
195. R. Cicchi, L. Sacconi, A. Jasaitis, R. P. O'Connor, D. Massi, S. Sestini, V. De Giorgi, T. Lotti, F. S. Pavone, *Multidimensional custom-made non-linear microscope: from ex-vivo to in-vivo imaging*, Applied Physics B: Lasers and Optics, Vol. 92, Issue 3, pp. 359-365, 2008, September.
196. L. Sacconi, J. Mapelli, D. Gandolfi, J. Lotti, R. P. O'Connor, E. D'Angelo, F. S. Pavone, *Optical recording of electrical activity in intact neuronal networks with random access second-harmonic generation microscopy*, Optic Express, Vol. 16, Issue 19, pp. 14910-21, DOI:10.1364/OE.16.014910, 2008, September 15.
197. F. Vanzi, L. Sacconi, F. S. Pavone, *Analysis of kinetics in noisy systems: application to single molecule tethered particle motion*, Biophys J., Vol. 93, pp. 21-36, 2007, July.
198. M. Capitano, R. Cicchi, F. S. Pavone, *Continuous and time-shared multiple optical tweezers for the study of single motor proteins*, Optics and Lasers in Engineering, Vol. 45, pp. 450-457, 2007, July.
199. M. Capitano, D. Maggi, F. Vanzi, F. S. Pavone, *FIONA in the trap: the advantages of combining optical tweezers and fluorescence*, J. Opt. A: Pure Appl. Opt., Vol. 9 pp. S157-S163, 2007.
200. R. Cicchi, D. Massi, S. Sestini, P. Carli, V. De Giorgi, T. Lotti, F. S. Pavone, *Multidimensional non-linear laser imaging of Basal Cell Carcinoma*, Opt. Express, Vol 15, pp. 10135-10148, 2007, August 6.
201. L. Sacconi, R. P. O'Connor, A. Jasaitis, A. Masi, M. Buffelli, F. S. Pavone, *In vivo multi-photon nanosurgery on cortical neurons*, J. Biomed. Opt., Vol. 12, pp. 50502, DOI: 10.1117/12.761588, 2007, January 20.
202. F. Vanzi, C. Broggio, L. Sacconi, F. S. Pavone, *Lac repressor hinge flexibility and DNA looping: single molecule kinetics by tethered particle motion*, Nucl. Acids Res., Vol. 34, p. 3409, 2006.

203. M. Galimberti, I. M. Tolic-Nørrelykke, R. Favillini, R. Mercatelli, F. Annunziato, L. Cosmi, F. Liotta, V. Santarasci, E. Maggi, F. S. Pavone, *Hypergravity speeds up the development of T-lymphocyte motility*, Eur. Biophys. J., Vol.35, Issue 5, pp. 393-400, 2006, May.
204. S. F. Tolic-Nørrelykke, M. B. Rasmussen, F. S. Pavone, K. Berg-Sørensen, L. B. Oddershede, *Stepwise Bending of DNA by a single TATA-box binding protein*, Biophys. J., Vol. 90, Issue 10, pp 3694-3703, 2006, May.
205. S. F. Tolic-Nørrelykke, E. Schaffer, J. F. S. Flyvbjerg, *Calibration of optical tweezers with positional detection in the back focal plane*, Review of scientific instruments, Vol. 77, Issue 10, 103101 DOI: 10.1063/1.2356852, 2006, October.
206. F. Vanzi, M. Capitanio, L. Sacconi, C. Stringari, R. Cicchi, M. Canepari, M. Maffei, N. Piroddi, C. Poggesi, V. Nucciotti, C. Linari, G. Piazzesi, C. Tesi, R. Antolini, V. Lombardi, R. Bottinelli, F. S. Pavone, *New techniques in linear and non-linear laser optics in muscle research*, Journal of Muscle Research and cell motility, Vol. 27, n. 5-7, Pp. 469-479, 2006, May.
207. L. Sacconi, I. M. Tolic-Nørrelykke, M. D'Amico, F. Vanzi, M. Olivotto, R. Antolini, F. S. Pavone, *Cell imaging and manipulation by non-linear optical microscopy*, Cell Biochem. Biophys, Vol. 45, Issue 3, pp. 289-302, 2006.
208. B. Van Den Broek, F. Vanzi, D. Normanno, F. S. Pavone, G. J. L. Wuite, *Real-time observation of DNA looping dynamics of Type IIE restriction enzymes NaeI and NarI*, Nucl. Acids Res., Vol. 34, Issue 1, pp. 167-174, 2006.
209. M. Capitanio, M. Canepari, P. Cacciafesta, V. Lombardi, R. Cicchi, M. Maffei, F. S. Pavone, R. Bottinelli, *Two independent mechanical events in the interaction cycle of skeletal muscle myosin with actin*, Proc. Natl. Acad. Sci. U.S.A., Vol. 103, Issue 1, pp. 87-93, DOI: 10.1073/pnas.0506830102, 2006, January 3.
210. R. Cicchi, D. Massi, D. D. Sampson, F. S. Pavone, *Contrast and depth enhancement in two-photon microscopy of human skin ex vivo by use of optical clearing agents*, Opt. Express, Vol. 13, Issue 2, pp. 2337, 2005.
211. M. Tolic-Nørrelykke, L. Sacconi, C. Stringari, I. Raabel, F. S. Pavone, *Nuclear and division plane positioning revealed by optical micromanipulation*, Curr. Biol. Vol. 15, p. 1212, 2005, July 12.
212. L. Sacconi, M. D'Amico, F. Vanzi, T. Biagiotti, R. Antolini, M. Olivotto, F. S. Pavone, *Second harmonic generation sensitivity to transmembrane potential in normal and tumor cells*, J. Biomed. Opt., Vol. 10, Issue 2, DOI: 10.1117/1.1895205, 2005, March.
213. L. Sacconi, I. M. Tolic-Nørrelykke, R. Antolini, F. S. Pavone, *Combined intracellular three-dimensional imaging and selective nanosurgery by a nonlinear microscope*, J. Biomed. Opt., Vol. 10, pp. 014002, 2005, January.
214. L. Sacconi, I. M. Tolic-Nørrelykke, C. Stringari, R. Antolini, F. S. Pavone, *Optical micromanipulations inside yeast cells*, Appl. Opt. 44, 2001, 2005, April 10.
215. M. Capitanio, R. Cicchi, F. S. Pavone, *Position control and optical manipulation for nanotechnology applications*, Eur. Phys. J. B, Vol. 46, Issue 1, pp. 1-8, 2005, July.
216. M. Tolic-Nørrelykke, L. Sacconi, G. Thon, F. S. Pavone, *Positioning and Elongation of the Fission Yeast Spindle by Microtubule-Based Pushing*, Current Biology, Vol. 14, pp. 1181-1187, 2004, July 13.
217. M. Capitanio, D. Normanno, F. S. Pavone, *High-precision measurements of light-induced torque on absorbing microspheres*, Opt. Lett., Vol. 29, pp. 2231-2233, 2004.
218. D. Normanno, M. Capitanio, F. S. Pavone, *Spin absorption, windmill and magneto-optics effects in optical angular momentum transfer*, Phys. Rev. A, Vol. 70, p. 053829, 2004, November.
219. M. Capitanio, F. Vanzi, C. Broggio, R. Cicchi, D. Normanno, G. Romano, L. Sacconi, F. S. Pavone, *Exploring Molecular Motor and Switches at Single-Molecule Level*, Micr. Res. Tech., Vol. 65, pp. 194-204, 2004, November 5.
220. G. Romano, L. Sacconi, M. Capitanio, F. S. Pavone, *Force and torque measurements using magnetic micro beads for single molecule biophysics*, Opt. Comm., Vol. 215, p. 323, 2003, January 15.
221. L. Sacconi, E. Froner, R. Antolini, M. R. Taghizadeh, A. Choudhury, F. S. Pavone, *Multiphoton Multifocal Microscopy exploiting a Diffractive Optical Element for grid scanning*, Opt. Lett. Vol. 28, 1918, 2003, October 15.

222. M. Capitanio, G. Romano, R. Ballerini, D. Dunlap, L. Finzi, M. Giuntini, F. S. Pavone, *Calibration of optical tweezers with DIC signals*, Rev. of Sci. Instrum. Vol. 73, pp. 1687-1696, 2002, January 21.
223. F. Pereira Dos Santos, F. Perales, J. Leonard, A. Sinatra, J. Wang, F. S. Pavone, E. Rasel, C. S. Unnikrishnan, M. Leduc, *Penning Collision of laser-cooled metastable helium atoms*, EPJ D 14, p. 15-22, 2001, April.
224. F. Pereira Dos Santos, F. Perales, J. Leonard, A. Sinatra, J. Wang, F. S. Pavone, E. Rasel, C. S. Unnikrishnan, M. Leduc, *Efficient magneto-optical trapping of a metastable helium gas*, Eur. Phys. J. AP, 69, 2001, April.
225. L. Sacconi, G. Romano, R. Ballerini, M. Capitanio, M. De Pas, D. Dunlap, M. Giuntini, L. Finzi, F. S. Pavone, *A 3D magneto-optical trap for micro-object manipulation*, Opt. Lett. 26, 1359, 2001.
226. E. Rasel, F. Pereira Dos Santos, F. S. Pavone, F. Perales, C. S. Unnikrishnan, M. Leduc, *White light transverse cooling of a helium beam*, EPJ D, Vol.7, n. 3, pp. 311-316, Special issue on laser cooling, 1999.
227. F. Minardi, G. Bianchini, P. Cancio Pastor, G. Giusfredi, F. S. Pavone, M. Inguscio, *Measurement of the  $2^3P_0$ - $2^3P_1$  fine structure interval of helium*, PRL 82, 1112, 1999.
228. G. Bianchini, P. Cancio, F. S. Pavone, F. Perrone, M. Prevedelli, M. Inguscio, *Wide bandwidth frequency locking of a 1083nm extended cavity DBR diode laser to a high finesse Fabry-Perot resonator*, Appl. Phys. B66, Vol. 407, 1998.
229. F. S. Pavone, F. Bassani, G. Bianchini, P. Cancio, F. S. Cataliotti, T. W. Hänsch, M. Inguscio, *Electromagnetically induced transparency in a RF discharge*, Eur. Phys. J. Vol. 1, n. 1, pp. 85-91, 1998.
230. M. Inguscio, G. Giusfredi, F. S. Pavone, M. Prevedelli, *The fine structure constant  $\alpha$ : laser spectroscopy of helium and electromagnetically induced transparency*, Physica Scripta Vol. 70, pp. 42-47, 1997.
231. F. S. Pavone, *Diode lasers and their applications in spectroscopy*, Rivista de "Il Nuovo Cimento", Vol. 19, n° 9, pp. 1-42, 1997.
232. M. Gabrysch, C. Orsi, F. S. Pavone, M. Inguscio, *Simultaneous detection of CO and CO<sub>2</sub> using a semiconductor DFB diode laser at 1.578 $\mu$ m*, Appl. Phys. Vol. 65, n. 1, pp. 75-79, 1997, July.
233. F. S. Pavone, G. Bianchini, F. S. Cataliotti, T. W. Hänsch, M. Inguscio, *Birefringence in electromagnetically induced transparency*, Opt. Lett., Vol 22, n° 10, pp. 736-38, 1997, May 15.
234. M. Prevedelli, P. Cancio, G. Giusfredi, F. S. Pavone, M. Inguscio, *Frequency control of DBR diode lasers at 1.08 $\mu$ m and precision spectroscopy of Helium*, Opt. Comm. Vol. 125, pp. 231-36, 1996, April 15.
235. A. C. den Boer, K. A. H. van Leeuwen, H. C. W. Beijerinck, C. Fort, F. S. Pavone, *Grating feedback in a 810 nm broad-area diode lasers*, Appl. Phys., Vol. 63, pp. 117-120, 1996, August.
236. M. De Angelis, L. Gianfrani, F. S. Pavone, A. Sasso, G. M. Tino, *Temperature dependence of self-broadening in molecular oxygen spectrum*, Rivista de "Il Nuovo Cimento" Vol. 18, n. 5, pp. 557-565, 1996, May.
237. F. S. Cataliotti, C. Fort, F. S. Pavone, M. Inguscio, *Doppler-free excitation of the weak  $6S_{1/2} - 8P_{1/2}$  transition at 389nm*, Zeit. für Phys. Vol. 38, n. 31, 1996.
238. F. Marin, F. Minardi, F. S. Pavone, M. Inguscio, G. W. F. Drake, *Hyperfine structure of the  $3^3P$  state of  $^3\text{He}$  and isotope shift for the  $2^3S$ - $3^3P_0$  transition*, Zeitsch für Physik Vol. 32, 285-293, 1995.
239. F. S. Pavone, *QED test and nuclear radius determination of helium atom by laser spectroscopy*, Physica Scripta Vol. 58, 16, 1995.
240. P. Cancio, F. S. Pavone, *High sensitivity detection of molecular absorption by semiconductor diode laser at wavelength lower than 2 $\mu$ m*, Physica Scripta Vol. T58, 86, 1995.
241. F. S. Pavone, P. Cancio, C. Corsi, M. Inguscio, *Linewidth and tuning characteristics of a mirror extended cavity DFB diode laser at 1.65 $\mu$ m*, Appl. Phys. B60, S249, 1995.
242. A. Arie, P. Cancio, F. S. Pavone, M. Inguscio, *Diode Laser Sub-Doppler spectroscopy of  $^{133}\text{Cs}_2$  around the 1083 nm  $^4\text{He}$  transitions*, Opt. Comm., Vol. 117, n. 1, pp. 78-82, 1995, May 15.
243. P. Cancio, C. Corsi, F. S. Pavone, *Sensitive detection of Ammonia absorption at 1.65 $\mu$ m by using a DFB semiconductor diode laser*, Infrared Physics & Technology, Vol. 36, n. 6, pp.987-993, 1995.

244. F. Biraben, M. Inguscio, F. Marin, F. S. Pavone, *Doppler-free detection of the  $5S_{1/2}$ - $5D_{5/2}$  two-photon transition in  $^{87}\text{Rb}$  using a narrow band AlGaAs diode laser*, Laser Physics, Vol. 4, n. 2, pp. 349-351, special issue in honour of V.P. Chebotayev, 1994.
245. F. Marin, F. Minardi, F. S. Pavone, M. Inguscio, *Precision measurement of the isotope shift of the  $2^3S_1$ - $3^3P_0$  transition in Helium*, Phys. Rev. Vol. 49, N. 3, pp. R1523- R1526, 1994, March.
246. F. S. Pavone, F. Marin, P. De Natale, M. Inguscio, *First pure frequency measurement of an optical transition in Helium: Lamb Shift of the  $2^3S_1$  metastable level*, Phys. Rev. Lett. , Vol. 73, n. 1, pp. 42-45, 1994, July 4.
247. G. Rouillé, R. Chauv , H. Berger, F. S. Pavone, *Electrodes for REMPI Spectroscopy in Static gases and calculation of REMPI intensities: application to molecular oxygen*, special issue on Journal of Raman Spectroscopy, Vol. 25, n. 7, pp 457-462, 1994, August.
248. F. S. Pavone, F. Marin, M. Inguscio, K. Ernst, G. Di Leonardo *Sensitive detection of acetylene absorption in the visible using a stabilized AlGaAs diode laser*, Appl. Opt. Vol. 32, N. 3, pp. 259-262, 1993, January 20.
249. N. I. Agladze, M. N. Popova, G. N. Zhizhin, M. Becucci, S. Califano, M. Inguscio, F. S. Pavone, *Study of the isotope composition in crystals by high resolution spectroscopy of monoisotope impurity*, Jpt. Vol. 76, n. 6, 1110, 1993, June.
250. F. S. Pavone, M. Inguscio, *Frequency and Wavelength modulation spectroscopies: comparison of experimental methods using an AlGaAs diode laser*, Appl. Phys., Vol. 56, n. 2, pp. 118-122, 1993, February.
251. S. Cavalleri, M. Matera, F. S. Pavone, P. Lambropoulos, J. Zhang, *High-sensitivity Study of Laser-Birifringence and Dichroism in The Ionization Continuum of Cesium*, Physical Review A 47, No 5, 4219, 1993.
252. G. Buffa, O. Tarrini, P. De Natale, M. Inguscio, F. S. Pavone, M. Prevedelli, K. M. Evenson, L. R. Zink, G. W. Schwaab, *Far Infrared Self Broadening in Methylcyanide: Absorber-Perturber Resonance*, Phys. Rev. Vol. 45, N. 9, pp. 6443-6450, 1992, 1 May
253. M. Barsanti, L. Gianfrani, F. S. Pavone, A. Sasso, C. Silvestrini, G. M. Tino, *Isotope shifts and hyperfine structures investigation of doubly excited levels in  $\text{Sr}^+$* , Z. Phys., Vol. 23, n. 2, pp. 145-149, 1992.
254. L. Ricci, F.S. Pavone, M. Prevedelli, L.R. Zink, M. Inguscio, F. Scappini, *Lamb Dip and Infrared-Radiofrequency Double Resonance Spectroscopy of  $^{188}\text{O}_5\text{O}_4$* , J. Chem. Phys. 94(4), 2509, 1991.
255. S. Cavalleri, F. S. Pavone, M. Matera, *Observation of a Laser-Induced Resonance in the Photoionization Spectrum of Sodium*, Phys. Rev. Lett. Vol. 67, n. 26, pp. 3673-76, 1991, December 21.
256. F. S. Pavone, L. R. Zink, M. Prevedelli, M. Inguscio, L. Fusina, *Tunable FIR Spectroscopy of  $\text{CH}_3\text{CN}$  between 569 GHz and 1.48 THZ*, J. Mol. Spect. 144, 45, 1990.
257. L. R. Zink, P. De Natale, F. S. Pavone, M. Prevedelli, K. M. Evenson, M. Inguscio, *Rotational Far Infrared Spectrum of  $^{13}\text{CO}$* , J. Mol. Spect. 143, 304-310, 1990.
258. L. Zink, F. S. Pavone, R. Meucci, M. Prevedelli, M. Inguscio, *External cell optogalvanic stabilization of a  $\text{CO}_2$ -laser - quantitative-analysis and frequency-measurement in the sequence band*, Optics Communications, Vol. 77, n. 1, pp. 41-44, DOI: 10.1016/0030-4018(90)90457-5, Citations: 8, 1990, June 1.

#### Invited talks in Conference.

1. *High-resolution human brain 3D reconstruction with light-sheet fluorescence microscopy*; Photonics West in San Francisco, USA, in January 2023.
2. *Il progetto del "cervello artificiale"*; XIV EDIZIONE Giornate Mediche di Santa Maria Nuova 2023, 24 novembre 2023, Firenze, Italia
3. *Large area brain optical mapping*; 24 October 2023, EMBL Rome, Italy
4. *Lectio Magistralis Large area brain imaging*, V Meeting of Neurosciences Tuscany, September 15-17, 2022, Florence, Italy.

5. *All-optical functional investigation of the larval zebrafish brain*, 16th Multinational Congress on Microscopy, September 4-9, 2022, Brno, Czech Republic.
6. *Label-free optical optical Biopsy*. Analytica Conference, June 21-23,2022, Munich, Germany
7. *In vivo Optical Imaging of Functional and Structural Plasticity after Stroke*, Binational Conference Israel-Italy on Brain Acute Vascular Pathologies, 14-15 June 2022, Tel Aviv Israel.
8. *Lectio Magistralis Brain Maps*, The festival of Science, October 30 - November 1, Genova, Italy.
9. *Large area functional and structural non linear brain imaging*, Photonics West 31 January-05 February 2020 San Francisco, US.
10. *Large area functional and structural brain imaging*, Wellcome Centr for Integrative Neuroimaging 3 December 2019 Oxford
11. *Large area functional non linear brain imaging* European Symposium on Ultrafast Laser driven Biophotonics (ESULaB 2019), 4-6 Settembre 2019, Jena, Germany.
12. *Advances in microscopic imaging*, European Conferences on Biomedical Optics, (ECBO 2019), 23-26 June 2019, Monaco, Germany
13. *Microstructural Changes of the Cortex in Health & Disease*, Brain-In-Depth (BID) 2019 International Symposium on layer-dependent MRI, Modeling Cortical Microstructure, 29 April 2019, Leipzig, Germany.
14. *Multi-modal Fiber-probe spectroscopy for tissue diagnostics and biological fluid sensing*, OASIS 7, 01-02 Aprile 2019, Tel Aviv, Israel.
15. *Towards the 3D digital optical histology*, SPIE Photonics West, 02-07 February 2019, San Francisco, Us.
16. *Combined rehabilitation promotes recovery of motors functionality in a mouse model of stroke*, SPIE Photonics West, 02-07 February 2019, San Francisco, US.
17. *High dynamical Range laser imaging of the brain*, International Conference on Laser Applications in Life Sciences (LALS2018), 18-20 November 2018, Tel Aviv (II).
18. *Optical early diagnosis of tissue diseases*, BioMaH 2018, 08 – 11 October 2018, Frascati, Italy.
19. *Multidimensional and multi-scale analysis of the rehabilitation after stroke*, SIAMOC Congress 2018, 3-6 October 2018, Florence, Italy.
20. *Optical detection of clinical phatologies by image*, Saratov Fall Meeting (SFM2018), 25-28 September, Saratov, Russia.
21. *Optical mapping of the brain*, OSA Lecture, 24 September 2018, Saratov, Russia.
22. *Morpho-functional imaging: connecting a single neuron to whole brain*, Plenay Lecture to the Central European Biomedical Congress (CEBC2018), 15-18 September 2018, Krakow, Poland.
23. *Brain optical mapping*, Cornell Neuronex Conference 2018, 18 – 19 July 2018, Ithaca, United States.
24. *Relation between structure and function in brain disease: a focus on stroke*, Gordon Research Conference, 9 – 13 July 2018, Lewiston, United States.
25. *Multimodal multiscale analysis of the Rehab after stroke*, Forum of Neuroscience (FENS 2018), 7 – 11 July 2018, Berlin, Germany.
26. *3D digital Histopatology of the human brain cortex*, SPIE Photonics Europe, 22-26 april 2018, Strasbourg, France.
27. *Optical detection of functionality and morpho-chemistry for biomedical applications*, Centre of Systems Biology, Bicocca University, 21 May 2018, Milan, Italy.
28. *3D Human Brain digital Histopatology*, Biophotonics Congress 2018 and Biomedical Congress, Fort Diplomat Resort, 02-06 April 2018, Fort Lauderdale, Florida, Us.
29. *Multidimensionale and multilevel imaging of tissue disease: towards the 3D digital histology*, International Conference on Biomedical Photonics, La Grande Motte, 16-17 March 2018, Montpellier, France.
30. *The “HBP Italy” project*, Hbp Country Event, University of Pavia, 13 March 2018, Pavia, Italy.
31. *Morpho-functional Optical imaging of the brain*, SPIE Lecture, University of Amsterdam, 26 February 2018, Amsterdam, Netherlands.
32. *Multiscale brain optical imaging*, SPIE Lecture, University of Wisconsin – Madison, 26 January 2018, Wisconsin, Us.
33. *Morpho-chemistry of tissues by optical imaging*, Winter School on Biotechnology, 22 January 2018, Perugia, Italy.

34. *Multidimensional and multilevel imaging of tissue disease: toward the 3D digital histology*, Physical Chemistry of the Cell Symposium, 15-17 November 2017, Orsay, France
35. *Multimodal optical Imaging of the whole Brain*, Multiphoton at the Cutting Edge, Keynote Lecture, 11<sup>th</sup> October 2017, Genova, Italy.
36. *Raman Applications*, Raman Imaging Workshop 2017, 13-15 September 2017, Ghent, Belgium.
37. *Human brain Project and multimodal optical imaging of the whole Brain*, 103<sup>o</sup> Congress of the Italian Physical Society (SIF217), 12 September 2017, Trento, Italy.
38. *Large scale multidimensional and multilevel imaging of tissue disease: toward the 3D histology*, Topical Problems of Biophotonics (TPB2017), 28 July – 03 August 2017, Nizhny Novgorod, Russia,
39. *A multivariate analysis of brain disease*, Adflim School 2017, 26-28 July 2017, Saint Petersburg, Russia.
40. *Multimodal Fiber-Probe Spectroscopy as a clinical tool for diagnosing and classifying biological tissues*, European Conference on Biomedical Optics (ECBO2017), 25-29 June 2017, Munich, Germany.
41. *A multivariate analysis of the brain disease*, Brain-inspired Computing Workshop (BrainComp2017), 12-16 June 2018, Cetraro, Italy.
42. *Hbp and multimodal optical imaging of the whole brain*, Imaging in the Life Sciences Meeting, 8 June 2017, Wien, Austria.
43. *Multidimensional and multilevel imaging of tissue disease*, Optics and the Brain, 2-4 April 2017, San Diego, USA.
44. *Imaging morfologico e funzionale post ictus*, La plasticità neuronale come strumento per la riabilitazione, 16-17 February 2017, Milan, Italy.
45. *Rehabilitation-triggered cortical plasticity after stroke: in vivo imaging at multiple scales*, SPIE BiOS Photonics West, 28 January – 2 February, 2017, San Francisco, USA.
46. *Optical detection of spatial-temporal correlations in whole brain activity*, SPIE BiOS Photonics West 2017 – Hot Topics: Neuro-technologies Plenary Session, 28 January – 2 March 2017, San Francisco, USA.
47. *Optical imaging of spatio-temporal correlations after stroke and rehab*, Meeting rete IRCCS per la ricerca di neuroimaging avanzato, 19 December 2016, Milan, Italy.
48. *News and opportunities from the Human Brain Project*, Understanding and fighting dementia: an Italy-Uk Symposium, 28 November 2016, London, U.K.
49. *High dynamic range correlative light microscopy*, *Young Life Scientist's Symposium*, 28 October 2016, London, U.k.
50. *Multi Scale Morpho-functional Characterization of Damage and Rehabilitation After Stroke*, Frontiers in Optics Laser Science (FIO-LS 2016), 17-21 October 2016, Rochester, U.s.
51. *Multimodal morpho-functional multi diagnosis of tissue tumor*, The Scientific Exchange (SCIX2016), 18-23 September 2016, Minneapolis, Us.
52. *Towards multimodal 3D digital histology*, Advanced Laser Technologies (ALT'16), 12-16 September, 2016, Galway, Ireland.
53. *From molecules to whole brain*, SelectBIO Conference, 14-15 June 2016, Cambridge, U. k.
54. *Morpho-functional imaging: connecting a single neuron to whole brain*, Imaging the Brain, EMBO 2016, 18-21 May 2016, Warsaw, Poland.
55. *Label-free NIR reflectance imaging as a complimentary tool for two-photon fluorescence microscopy*, SPIE Photonics West, 13-18 February 2016, San Francisco, U.s.a.
56. *Imaging and manipulating single molecules with photons*, Seeing molecules. Le microscopie per le scienze molecolari, Accademia nazionale dei Lincei, 17 November 2015, Rome, Italy.
57. *Optical Imaging of the Brain: From the Nano to the Macro World*, Symposium on Microscopy Imaging, 24 September 2015, Charlottesville, U.s.a.
58. *Label-free Optical techniques in Brain Research*, Incubator on Label-free Optical Techniques for Biomedical Diagnostics & Imaging, 16-18 September 2015, Washington, U.s.a.
59. *Optical imaging of the brain: from the nano to the macro world*, Bio-Nano Photonics Symposium, 7-9 September 2015, Cardiff, U.k.
60. *Large area morpho-functional imaging of excitable tissues*, Topical Problems of Biophotonics (TPB2015), 20-24 July 2015, Novgorod, Russia.

61. *High resolution brain optical imaging of architectures and functionalities*, BRAINCOMP 2015, 6-8 July 2015, Cetraro, Italy.
62. *Quantitative mapping in whole mouse brain with light sheet microscopy*, Lightsheet Fluorescence Microscopy International Conference (LSFM2015), 5-8 July 2015, Genoa, Italy.
63. *Multiscale optical brain imaging*, European Conference on Biophotonics (ECBO2015) - Hot Topics: Light for Life, 21-25 June, Munich, Germany.
64. *Introduction to Neurophotonics*, Optics in Life Sciences, 12-15 April 2015, Vancouver, Canada.
65. *Large scale imaging of neural networks*, Pharmakologie Seminar 2015, 25th February 2015, Zurich, Switzerland.
66. *Multiphoton Microscopy in brain imaging*, SPIE Photonics West, 7-12 February 2015, San Francisco, Us.
67. *Whole brain optical imaging*, SPIE Photonics West, 7-12 February 2015, San Francisco, Us.
68. *Multidimensional Tissue Fingerprint*, Asia Communications and Photonics Conference (ACP2014), 11-14 November, Shanghai, China.
69. *Imaging ottico del cervello*, La comunicazione tra cellule neuronali. Dai segnali intracellulari alla coscienza, Giornata Linea Golgi, 29th October, 2014, Rome, Italy.
70. *Large scale linear and non linear brain imaging*, Quantissue meeting 2014, 8-10 October 2014, Munich, Germany.
71. *Whole brain optical imaging*, Società Italiana di Biofisica Pura e Applicata, (SIBPA2014), 21-24 September 2014, Palermo, Italy.
72. *Biophotonics for tissues disease assessment*, European Optical Society Annual Meeting (EOSAM14), 15-19 September 2014, Berlin, Germany.
73. *Multimodal spectroscopic fingerprint of tissue lesions*, International Conference on Laser Applications in Life Sciences (LALS2014), 29 June – 2 July 2014, Ulm, Germany.
74. *Correlative two-photon and light sheet microscopy*, SPIE Photonics Europe, 14-17 April 2014, Brussels, Belgium.
75. *Exploring the brain on multiple scales with correlative two-photon and light sheet microscopy*, Photonics West, 1 - 6 February 2014, San Francisco, Usa.
76. *Morpho-functionality in intact neural networks: from single cell to whole organ*, Spatially Precise Optogenetics at Depth Incubator Meeting, 9-10 December 2013, Washington, Us.
77. *Collagen order in tissue disease*, Asia Communications and Photonics Conference (ACP 2013), 12-15 November 2013, Beijing, China.
78. *Placing a single neuron in the whole brain context*, International Conference on Brain Network, 15-16 October 2013, Wuhan, China.
79. *Laser Detection of Tissue Disease*, Progress in Electromagnetics Research Symposium (PIERS 2013), 12-15 August 2013, Stockholm, Sweden.
80. *Morpho-chemical analysis of tissues*, Tropical Problems of Biophotonics - 2013 (TPB2013), 21-27 July 2013, Novgorod, Russia.
81. *Morpho-functionality in intact networks of activable cells*, ELM2013, 20-24 May 2013, Arcachon, France.
82. *Reactive neural plasticity explored by correlative two-photon and electron microscopy*, European Conference on Biomedical Optics (ECBO), 12-16 May 2013, Munich, Germany.
83. *Optical Imaging and Manipulation of Excitable Cells in Complex Networks*, Optical Molecular Probes Conference (OMP), 14-18 April 2013, Waikoloa, Us.
84. *Microscopy imaging of action potentials*, EOC Conference, 10-12 April 2013, Guildford, UK.
85. *In vivo reactive neural plasticity investigation by means of correlative two photon: electron microscopy*, BIOS Photonics West, 2-7 February 2013, San Francisco, Us.
86. *Laser detection of tumors*, ACP2012, 7-10 November 2012, Guangzhou, China.
87. *Non linear imaging of electrical activity in intact tissues*, EOSAM2012, 25-28 September 2012, Aberdeen, Scotland.
88. *Non linear in vivo fluorescence microscopy*, IEEE Photonics Conference 2012, 23-27 September 2012, San Francisco, Us.
89. *Biophotonics: perspectives in biomedical imaging*, Photon12, 3-6 September 2012, Durham, UK

90. *In Vivo Reactive Neural Plasticity Investigation by means of Correlative Light-Electron Microscopy*, Optics within life sciences (OWLS2012), 4-6 July 2012, Genoa, Italy.
91. *Non linear voltage imaging*, Workshop on Optical Microscopy in Life Science, 26-27 June, Wuhan, China
92. *A LED-based medical device for selective photocoagulation of blood*, ICOB2012, 19-21 June 2012, Jena, Germany.
93. *Use of light for tissue imaging*, 3° Congresso Internazionale di Laser in Medicina e Chirurgia 2012, 25-26 May 2012, Milan, Italy.
94. *Use of light for skin disease diagnosis*, Congresso Annuale Associazione Italiana Diagnostica Non Invasiva in Dermatologia (AIDNID), 10 – 12 May 2012, Florence, Italy.
95. *Linear and nonlinear imaging of electrical activity and morphology in intact tissues*, Biophotonics: Photonic Solutions for Better Health Care, 15 – 20 April 2012, Brussels, Belgium.
96. *Confocal ultramicroscopy: High resolution fluorescence imaging of the entire mouse brain*, Focus On Microscopy 2012, 1 - 4 April 2012, Singapore, China.
97. *Ultrafast microscope and novel voltage-sensitive dyes for simultaneous recordings at surface and T-tubular membrane*, Frontiers in CardioVascular Biology, 31 March – 1 April 2012, London, Uk.
98. *In vivo morpho-functional laser imaging*, Molecular Imaging: from cell to man, 24 November 2011, Turin, Italy.
99. *Non linear Morphofunctional Imaging of Tissues*, Saratov Fall Meeting 2011, 27-30 September 2011, Saratov, Russia.
100. *Probing T-Tubular, Electrophysiology by Random Access Two Photon Microscopy*, Fotonica 2011, 9 May 2011, Genoa, Italy.
101. *Action potential propagation in T-tubular network*, Focus on microscopy, 17-20 April 2011, Kostanz, Germany
102. *Very high speed and ultra-precise manipulation and imaging of a single bio-molecule*, RNAi&Single Cell Biology-Summit 2011, 3-5 April 2011, Boston, Us.
103. *Non linear laser imaging of tissues*, 24th International Congress Laser Medicine & IALMS Courses, 5-6 november 2010, Florence, Italy.
104. *Non Linear Morphofunctional Imaging of Tissues*, SFM 10, 5-8 October 2010, Saratov, Russia. Plenary Talk.
105. *Applicazioni Biologiche legate alla Microscopia*, Prima Scuola nazionale sui sensori ottici e biofotonica, 25/09-1/10 2010. Ischia, Italy.
106. *Multi-photon Nanosurgery in Live Brain*, 5th Workshop on Advanced Multiphoton and Fluorescence Lifetime Techniques, 14-16 June 2010, Saarbrücken, Germany
107. *Morpho-functional non linear laser imaging of tissues*, LASL 2010, 8-12 June 2010, Oulu, Finland
108. *Non linear morpho functional imaging of human bladder*, Photonics Europe, 13-16 April 2010, Brussels, Belgium.
109. *Multiphoton Nanosurgery in Live Brain*, Trends in Optical Micromanipulation II, 11-16 april 2010, Innsbruck, Austria
110. *Non linear morpho-functional imaging of tissues*, 2nd MPE Conference, 3-4 february 2010, Cambridge, UK.
111. *Order and Structural Dynamics with Second Harmonic Generation Imaging*, 19<sup>th</sup> World of Photonics Congress, 14-19 June 2009, Monaco, Germany.
112. *From single atom to bulk structure with second harmonic generation microscopy*, Convegno congiunto DGaO-SIOF (110° Convegno della DGaO), 2-5 June 2009, Brescia, Italy.
113. *Non-linear imaging of skin lesions*, AIDNID annual meeting, 19-21 March 2009, Naples, Italy
114. *Dynamics and fluctuations in molecule orientations and electrical signal propagations in neurons with second harmonic generation microscopy*, SPIE Photonics West, 24-29 January 2009, San Jose, California, Us.
115. *RASH Microscopy*, 3<sup>rd</sup> Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques FLIM 2008, 30 June - 2 July 2008, Saarbrücken, Germany.

116. *Imaging and manipulating bio-samples with light*, Nonlinear Microscopy and Optical Control 2008, Münster, 19-20 February 2008
117. *Non linear optical manipulation in living cells*, 2<sup>nd</sup> European Optical Society Topical Meeting: Optical Microsystems, 30 September - 3 October 2007, Capri, Italy.
118. *Non-linear imaging, recording and manipulation in neural networks*, SINS: Workshop Italian Society Neuroscience, 27-30 September 2007, Verona, Italy.
119. *Tissue imaging with non linear laser microscopy*, FLAIR - Field laser applications in Industry and Research, 2-7 September 2007, Florence, Italy.
120. *Laser micro-machining in living cell*, European Conference on Biomedical Optics: Biophotonics-Optics in Life Science, 17-21 June 2007, Munich, Germany.
121. *Non linear optical manipulation in living cells*, Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques, 17-21 June 2007, St. Ingbert, Germany.
122. *SHG and CARS Microscopy I & II*, XI School of Pure and Applied Biophysics, Advanced Optical Microscopy Methods In Biophysics, 29 January - 2 February 2007, Venice, Italy.
123. *Photonic Nano-Objects*, Centre of Physics, 22 - 26 January 2007, Les Houches, France.
124. *Laser nanomanipulation of a single molecular motor NANOME06 Symposium* "Interdisciplinary Symposium Materials Science and Materials Mechanics at the Nanoscale: Modeling, Experimental Mechanics & Applications", 19-23 November 2006, Bari, Italy.
125. *Detection and Monitoring of a protein complex formation on the cell membrane of living cells using TIRFM-FRET*, VIII Meeting FISV (Federazione Italiana Scienze della Vita), 28 September - 1 October 2006, Riva del Garda, Italy.
126. *Non-linear imaging of Neurons*, Zinc Signals 2006, 16 – 21 September, Abbazia Monte Oliveto, Siena, Italy.
127. *New techniques in linear and non-linear laser optics in muscle research*, European Muscle Conference 2006, 9-13 September 2006, Heidelberg, Germany.
128. *Study of calcium transport through ATPase*, 1st International Workshop on Expression, Structure and Function of Membrane Proteins, 18-22 June 2006, Florence, Italy.
129. *Multiphoton Biology*, IX Convegno Nazionale "Strumentazione e metodi di misura elettroottici" Elettroottica 2006, 6-8 June 2006, Rome, Italy.
130. *Detection and Monitoring of a protein complex formation on the cell membrane of living cells using TIRFM-FRET*, Meeting dell'Associazione di Biologia Cellulare e del Differenziamento (ABCD), 24-25 March 2006, Certosa di Pontignano, Italy.
131. *Diffusion of optical clearing agents in skin studied by two-photon microscopy*, Saratov, Fall Meeting 2005, 27-30 September 2005, Saratov, Russia
132. *Single molecule manipulation: applications and perspectives*, 2nd National Conference on nanoscience and nanotechnology: the molecular approach, 25-27 February 2004, Bologna, Italy.
133. *Single bio-object detection and manipulation*, 13th SASP (Symposium on Atomic, Cluster and Surface Physics), 17-22 Febbraio 2002, Going, Austria.
134. *High density and cold Temperature in a Metastable Helium beam: towards the BEC*, INFN Congress, 14-18 June 1999, Catania, Italy.
135. *Precision Spectroscopy of Helium*, Sixteenth International Conference on Atomic Physics - ICAP 16, 3-7 August 1998, Windsor, Canada.
136. *Precision Spectroscopy of Helium and the fine structure constant  $\alpha$* , European Quantum Electronic Conference EQEC98, 13-18 September 1998, Glasgow, UK.
137. *Precision saturation spectroscopy: laser cooling induced linecenter shift*, The Sixth European Conference on Atomic and Molecular Physics - ECAMP VI, 14-18 July 1998, Siena, Italy.
138. *Systematic investigation of the  $2^3P_1 \rightarrow 2^3P_0$  fine structure interval in helium*, Laser Spectroscopy XIII, 2-7 June 1997, Hangzhou, China.

139. *High precision spectroscopy of Helium atom*, Twelfth International Conference on laser spectroscopy, 11-16 June 1995, Capri, Italy.
140. *High sensitivity detection of molecular absorption by semiconductor diode laser at wavelength lower than 2  $\mu\text{m}$* , 26th EGAS, 12-15 July 1994, Barcelona, Spain.
141. *QED test and nuclear radius determination of Helium atom by laser spectroscopy*, 26th EGAS, 12-15 July 1994, R. Pick, Paris eds., p.4, plenary, Barcelona, Spain.
142. *Precision laser spectroscopy of Helium*, 5th EQEC, 28 August - 2 September 1994, Amsterdam, Netherlands, p. 44, plenary.
143. *Rivelazione in tracce di inquinanti con laser a diodo a semiconduttore*, XVIII congresso GNSM-CNR, 26-29 October 1994, Florence, Italy.
144. *Spettroscopia con sorgenti laser di vecchia e nuova generazione*, XVIII congresso GNSM-CNR, 26-29 October 1994, Florence, Italy.
145. *Dal visibile al vicino infrarosso: nuove prospettive nella rivelazione di molecole con i laser a semiconduttore DFB*, LXXX congresso SIF, 26 September - 1 October 1994, Lecce, Italy.
146. *QED test and nuclear radius determination of Helium atom by laser spectroscopy*, 26<sup>th</sup> EGAS conference, 11-17 September 1994, Bellaterra, Barcelona, Spain.
147. *High resolution and high sensitivity spectroscopy using semiconductor diode lasers*, XVIII International Conference on Quantum Electronics, 14-19 June 1992, Vienna, Austria.

#### Invited book chapters

- 1 Allegra Mascaro A.L., Pavone F.S., *Multi-Photon Nanosurgery* in Handbook of Neurophotonics, 2020.
- 2 Silvestri L., Pavone F.S., *Advanced Light-Sheet Microscopy to Explore Brain Structure on an Organ-Wide Scale*, Book Chapter in Handbook of Neurophotonics, 2020.
- 3 L. Gardini, A. Tempestini, F.S. Pavone, M. Capitano, *High speed optical tweezers for the study of the single molecular motors*, Book Chapter in Methods in Molecular Biology, Vol. 1805, pp. 151-184, 2018.
- 4 L. Gardini, M. Calamai, H. Hatakeyama, M. Kanzaki, M. Capitano, F.S. Pavone, *Three-dimensional Tracking of quantum dot-conjugated molecules in living cells*, Book Chapter in Methods in Molecular Biology, Vol. 1814, pp. 425 – 448, 2018.
- 5 A. L. Allegra Mascaro, L. Silvestri, F.S. Pavone, *Multiscale correlative imaging of the brain*, in Multiphoton and fluorescence lifetime imaging: application in biology and imaging, K. König ed., pp. 321-344, Pub. De Gruyter, 2018.
- 6 R. Cicchi, F. S. Pavone, *Probing collage organization: practical guide for second-harmonic generation (SHG)*, Book Chapter in Methods in Molecular Biology, Vol. 1627, p. 409-425, 2017.
- 7 *Second Harmonic generation Imaging*, P. J. Campagnola and F.S. Pavone editors, Taylor and Francis, CRC Press, 2013. ([content overview](#))
- 8 *Laser and Imaging and manipulation in cell biology*, F.S. Pavone Editor, Wiley, 2010. ([content overview](#))
- 9 R. Cicchi, L. Sacconi, F. S. Pavone, *Nonlinear Imaging of Tissues in Handbook of Photonics for Biomedical Science*, V. Tuchin editor, p. 509-546, CRC press, 2010. ([abstract](#))
- 10 L. Sacconi, A. Masi, F.S. Pavone, *Optical Manipulation in a Living Cell*, in Micro and Nano Manipulations for Biomedical Applications, T. C. Yih and I. Talpasanu eds, Artech House Inc., MA, USA, 2008.
- 11 F.S. Pavone, *Manipolazione ed imaging con microscopie non lineari*, in 1956-2006 Cinquanta anni di microscopia in Italia tra storia, progresso ed innovazione, D. Quaglino, E. Falcieri, M. Catalano, A. Diaspro, A. Montone, P. Mengucci, C. Pellicciari Eds., Tipografia PI.ME. Editrice srl, Pavia, Italy, p. 163-178, 2006
- 12 *The Hydrogen Atom: precision physics with simple atomic systems*, S. Karshenboim, F.S. Pavone, F. Bassani, M. Inguscio, T.W. Haensch Eds., Springer Verlag, Heidelberg-Berlin-New York, 2001. ([content overview](#))
- 13 P. C. Pastor, P. De Natale, G. Giusfredi, F.S. Pavone, M. Inguscio, *High precision measurements on Helium at 1083nm*, in The Hydrogen Atom: precision physics with simple atomic systems, S.

- Karshenboim, F.S. Pavone, F. Bassani, M. Inguscio, T.W. Haensch eds., Springer Verlag, Heidelberg-Berlin-New York, p. 314-342, 2001. ([abstract](#))
- 14 F. Cataliotti, P. De Natale, C. Fort, G. Giusfredi, M. Inguscio, F. Minardi, P. Cancio Pastor, and F.S. Pavone, *From Atoms to single bio-molecules through Bose-Einstein Condensate*, in Laserphysics at the limit, H. Figger, D. Meschede, C. Zimmermann Eds., Springer Verlag, Heidelberg-Berlin-New York, p. 291, 2001. ([abstract](#))
- 15 P. Cancio, M. Artoni, G. Giusfredi, F. Minardi, F.S. Pavone, M. Inguscio, *Precision Spectroscopy of Helium in Atomic Physics 16*, W. E. Baylis and G. W. F. Drake eds., American Institute of Physics (AIP), Woodbury NY, p. 43, 1999.
- 16 P. Cancio, G. Giusfredi, F. Minardi, F.S. Pavone, M. Inguscio, *Helium Spectroscopy and Fine structure constant*, in Frontier Test of QED and Physics of the vacuum, E. Zavattini, D. Bakalov and C. Rizzo Eds., Heron Press, Sofia, p. 333, 1998. ([abstract](#))
- 17 M. Inguscio, F.S. Cataliotti, C. Fort, F.S. Pavone, M. Prevedelli, *A new generation of light sources for applications in spectroscopy*, in Atomic physics methods in modern research, G. Zu Putliz, J. Kowalski, I. Reinhard, F. Tragen Eds., Springer Verlag, New York, p. 136, 1997. ([abstract](#))
- 18 F. Minardi, D.J.E. Knight, A. Aire, F.S. Pavone, F. Venurini, M. Inguscio, *Frequency doubling of 1083nm diode laser radiation for locking to Iodine absorption*, in Laser Spectroscopy XIII, Zhi Jiang, Zhi-Ming Zhang and Yu-Zhu Wang Eds., World Scientific Publishing, Singapore, pp. 469-471, 1997.
- 19 M. Artoni, G. Bianchini, F.S. Cataliotti, M. Inguscio, F.S. Pavone, *Electromagnetic induced transparency and birefringence in a radio-frequency discharge*, in Laser Spectroscopy XIII, Zhi Jiang, Zhi-Ming Zhang and Yu-Zhu Wang Eds, World Scientific Publishing, Singapore, p. 345, 1997
- 20 G. Bianchini, S. Busoni, G. Giusfredi, F. Minardi, F.S. Pavone, M. Inguscio, *Systematic investigation of the  $23P1 \rightarrow 23P0$  fine structure interval in helium*, in Laser Spectroscopy XIII, Jiang, Zhi-Ming Zhang and Yu-Zhu Wang Eds, World Scientific Publishing, Singapore, pp. 15-20, 1997.
- 21 P. Cancio, G. Bianchini, G. Giusfredi, F.S. Pavone, M. Prevedelli, M. Inguscio, *High precision spectroscopy of the helium atom at 1083nm*, in *Frequency Standard and Metrology*, J. C. Bergquist ed. , World Scientific publish., p. 151, 1996. ([abstract](#))
- 22 F.S. Pavone, F. Bassani, G. Bianchini, P. Cancio, F.S. Cataliotti, T.W. Hänsch, M. Inguscio, *Lineshape for a pure three level system: quantum coherence effects on absorption and birefringence of helium*, in Spectral Line Shapes, M. Zoppi Ed., the American Institute of Physics Press, New York, Vol. 9, p. 255, 1996.
- 23 M. Inguscio, F.S. Cataliotti, P. De Natale, G. Giusfredi, F. Marin, and F.S. Pavone, *Recent developments in laser spectroscopy of Helium*, in Atomic Physics XIV, The American Institute of Physics, AIP, New York, C. E. Wiemann, D. J. Wineland and S.J. Smith Eds., p. 81, 1995.
- 24 F.S. Pavone, G. Bianchini, P. Cancio, F.S. Cataliotti, G. Giusfredi, M. Prevedelli, and M. Inguscio, *High precision spectroscopy of helium atom at 1083nm: towards a determination of the fine structure constant  $\alpha$* , Laser Spectroscopy XII, M. Inguscio, M. Allegrini and A. Sasso Eds., World Scientific Publishing, p. 96, 1995.
- 25 F. Marin, F. Minardi, F.S. Pavone and M. Inguscio, *Isotope effect and precision measurement on the  $23S-33P0$  transition of helium*, in Laser Spectroscopy XI, L. Bloomfield, T. Gallagher and D. Larson Eds., American Institute of Physics, New York, p. 17, 1993.
- 26 M. de Angelis, F. Marin, F.S. Pavone, G. M. Tino, M. Inguscio, *Pure absorption spectroscopy of molecular oxygen using a cw AlGaAs laser*, in Monitoring of gaseous pollutants by tunable diode lasers, R. Grisar, H. Boettner, M. Tacke and G. Restelli Eds., pp. 257-264, Kluwer Academic Publishers, 1991.
- 27 F.S. Pavone, F. Marin, M. Inguscio, K. Ernst, G. Di Lonardo: *Sensitive detection of acetylene absorption in the visible using a stabilized AlGaAs diode laser*, in Monitoring of gaseous pollutants by tunable diode lasers, R. Grisar, H. Boettner, M. Tacke and G. Restelli Eds., pp. 257-264, Kluwer Academic Publishers, 1991

#### Supervision of Master of Science thesis:

1. Mancini Mirco, *Experimental method for sampling and analysis of microplastic particles from Florence Wastewater Treatment Plant effluents*, Civil Engineering, 2021
2. Caldini Chiara, *Fine-tuning and calibration of a 3D super-resolution microscopy optical system*, Physics and Astrophysics Sciences, 2020, Unifi

3. Dallari Caterina, *Development and optimization of new substrates for SERS sensors*, Chemical Sciences, 2018, Unifi
4. Parretti Matteo, *Optimization of the transfection of ChR2 mediated by adeno-associated virus through the manipulation of neuronal activity with light*, Biology, 2015, Unifi
5. Conti Emilia, *Structural and functional plasticity in vivo in mouse model of cerebral ischemia*, Biology, 2015, Unifi
6. Alterini Tommaso, *Development and characterization of a confocal light sheet microscope with Bessel illumination for in vivo imaging*. Physics and Astrophysics Sciences, 2015, Unifi
7. Cecchi Roberta, *Characterization of a Raman micro-spectroscopy system for the classification of biological tissues*, Molecular Biotechnologies, 2015, Unifi
8. Baria Enrico, *Development of a multimodal non-linear microscopic platform and its application to the study of arterial tissues*. Physics and Astrophysics Sciences, 2014, Unifi
9. Dimitri Benevieri, *Super-resolution optical microscopy systems for biological investigations*, Mathematical, Physical and Natural Sciences, 2010, Unifi.
10. Enrico Baria, *Classification of human melanocytic lesions by Raman spectroscopy*, Mathematical, Physical and Natural Sciences, 2010, Unifi.
11. Lucia Conti, *The multiphoton: new method of non-invasive investigation in photorejuvenation with fractional CO2 laser*, Medicine and Surgery, Co-relator, 2009, Unifi.
12. Paride Antinucci, *Optical methods for neurocomputation*, Biological Sciences, 2009, Unifi.
13. Gionata Belcastro, *The myosin Vb motor protein: development of an expression system and a single molecule localization methodology*, Molecular Biotechnologies, 2009, Unifi
14. Jacopo Lotti, *Detection of electrical activity in intact neural networks by second harmonic generation optical microscopy*, Environmental and Industrial Biotechnology, 2008, UniFi
15. Letizia Allegra, *Development of an experimental apparatus for the detection of analytes in low concentrations*, Chemistry of biological molecules, 2007, UniFi
16. Elena Froner, *Nanostructured silicon for biomedical applications: preparation and surface functionalization*, Physics, 2006, UniTn
17. Dario Maggi, *Realization of an apparatus for the localization under diffractive limit of a single fluorescent molecule*, Physics, 2006, UniFi
18. Chiara Stringari, *Visualizzazione e manipolazione di cellule di lievito tramite microscopia ottica non lineare*, Physics, 2005, UniBo
19. Raffaella Mercatelli, *Characterization of the motility of T lymphocytes in conditions of normal gravity and hypergravity*, Physics, 2005, UniFi
20. Valentina Quercioli, *Study of DNA / protein interaction dynamics with single molecule techniques*, Physics, 2005, UniFi
21. Chiara Brogio, *Study of DNA-LACR interaction at the single molecule level*, Physics, 2004, UniMi
22. Roberto Favillini, *Development of an experimental method for the study of gravisensitivity in the locomotion of T lymphocytes*, Physics, 2003, Unifi
23. Riccardo Cicchi, *Study of the mechanics of a single non-processive molecular motor*, Physics, 2003, UniFi
24. Davide Normanno, *Moment of force measurements on microsystems*, Physics, 2003, UniFi
25. Leonardo Sacconi, *Realization and characterization of a 3D magneto-optical manipulator for biophysical application of a single molecule*, Physics, 2001, UniFi
26. Marco Capitanio, *Realization and characterization of an optical tweezer*, Physics, 2000, UniFi

#### **Supervision PhD thesis:**

1. Niamh Bradi, PhD started in 2020, LENS
2. Chiara Caldini, *Development of an optical system for Expansion-STORM microscopy for the study of molecular interactions and genome spatial organization in bacteria*, PhD started in 2020, LENS
3. Castelli Filippo Maria, *Development of advanced image analysis methods for light-sheet microscopy*, PhD started in 2019
4. Caterina Dallari, *Plasmonic-based sensors for chemical and biochemical sensing applications*, PhD started in 2019, LENS

5. Jessica Lucchesi, *Innovative optical methods to investigate neural dynamics from freely moving mice*, PhD started in 2019, LENS
6. Pietro Ricci, PhD started in 2018, LENS
7. Ali Gheisari *Novel tools for simultaneous optogenetic manipulation and calcium imaging in the zebrafish nervous system*, 2017, LENS
8. Alberto Sosa Costa, *Insights on the spatiotemporal organization of integrins and their ligands using quantitative biophysical tool*, 2017 (Co-Supervisor), LENS
9. Antonino Di Giovanna, *Brain vasculature imaging with two-photon and light-sheet microscopy*, 2017, LENS
10. Irene Costantini, *A morphological brain imaging study: a new versatile clearing agent for light sheet and two-photon fluorescence microscopy*, 2016, LENS.
11. Claudia Crocini, *Defects of excitation contraction coupling in cardiac disease explored by random access microscopy*, 2015, LENS.
12. Lucia Gardini, *3D tracking of single molecular motors*, 2014, LENS.
13. Gionata Belcastro, *Combining single-molecule localization. Optical trapping and microfluidics for the study of protein-DNA interaction*, 2013, LENS.
14. Jacopo Lotti, *Intra --- and inter --- cellular action potential recording by non-linear optical microscopy*, 2012, LENS.
15. Ludovico Silvestri, *Confocal ultramicroscopy: micron-scale neuroanatomy of the entire mouse brain*, 2012, LENS.
16. Dimitris Kapsokalyvas, *In vivo Imaging of Human Skin. Macroscopic and microscopic optical investigation of skin diseases*, 2011, LENS
17. Blaine Bisel, *Uncoupling the polarization of the Golgi apparatus and plasma membrane*, 2011, LENS
18. Anna Letizia Allegra Mascaro, *Reactive Structural plasticity of climbing fibres laser axotomy*, 2011, LENS
19. Carina Monico, *Experimental Apparatus and methodologies for simultaneous trapping and nanometer-precision localization of single processive biomolecules*, 2009, LENS
20. Chiara Stringari, *Second harmonic generation Imaging of Muscle Tissue*, 2008, Dip. di Fisica, Unittn
21. Davide Normanno, *Biochemistry and mechanics of gene expression regulation by lac repressor at the single molecule level*, 2007, LENS
22. Chiara Broggio, *Realizzazione e caratterizzazione di un apparato in onda evanescente per studi di biofisica molecolare e cellulare*, 2007, UniTn
23. Riccardo Cicchi, *Non Linear laser Imaging of human skin*, 2006, UniFi
24. Massimo Galimberti, *Lymphocyte migration: experimental methods for the evaluation of the effects of gravity*, 2005, LENS
25. Leonardo Sacconi, *Cell Imaging and Manipulation by Non-linear Optical Microscopy*, 2004, UniTn
26. Marco Capitanio, *Il passo elementare di forza e di lunghezza nella miosina sarcomerica*, 2004, UniFi
27. Giovanni Romano, *Micromanipulation techniques used to study in vitro DNA properties in a tethered bead configuration*, 2003, dip. Fisica, Unifi