Milena D'Angelo - CV

EDUCATION:

1999: Laurea in Physics from Università degli Studi di Bari, Italy

2002: Matser in Applied Physics from University of Maryland Baltimore County (UMBC), USA

2004: PhD in Applied Physics from UMBC, USA

PROFESSIONAL EXPERIENCES:

2019-oggi: Associate professor in Applied Physics, Dip. Interateneo di Fisica – Università degli Studi di Bari

2010-2019: Assistant professor in Experimental Physics, Dip. Interateneo di Fisica – Università degli Studi di Bari

2007-2010: post-doc, Dip. Interateneo di Fisica – Università degli Studi di Bari

2006-2007: post-doc, LENS (Firenze)

August 2007: Visiting researcher – Phyics Dept - University of Louisiana, USA

2005-2006: Marie Curie Fellow, Dip. di Fisica – Università degli Studi di Firenze & European Lab of Nonlinear Spectroscopy (LENS)

2005-2006: Visiting researcher – Phyics Dept. - UMBC, USA

2000-2004: research assistant – Phyics Dept. - UMBC, USA

SCIENTIFIC RESPONSIBILITY WITHIN RESEARCH PROJECTS:

Coordinator of the European project QuantERA 2019 (financed by Italian research center INFN): Qu3D (2020-2023), other partners: EPFL (Switzerland), Olomouc Univ. (Czech Rep.), Planetek Hellas epe (Greece)

Coordinator of the INFN project: PICS4ME (2020-23), other partners: INFN Turin

Participation in the project MIUR PON-ARS: CLOSE – Close to the Earth (2018-2021), coordinated by the Apulia Aerospace District

Participation in other projects: PON Massime, PON Innovhead, PON Sistema, Reti di laboratori Microtronic

COORDINATION ROLES WITHIN THE UNIVERSITY AND THE DEPARTMENT:

Member of the Accademic Senate (since Dic. 2020)

Member of the Committee of the PhD School in Physics

Leader of the research group of Quantum Optical Technologies 2.0 and its lab

President of the School for Physics Teachers (TFA Fisica, when activated)

Scientific-didactic referent for the program PAC-Messaggeri della conoscenza (MIUR, 2013-14)

PATENTS:

1. M. D'Angelo, A. Garuccio, F. V. Pepe, O. Vaccarelli, T. Macchia, "Dispositivo e procedimento di acquisizione plenottica di immagini", Italian patent n. 102016000027106 of 15/03/2016, deposited on 04/09/2018. Also deposited in Europe (n. 3220185B1) and Hong Kong (n. 18100482.5)
2. M. D'Angelo, A. Garuccio, F.V. Pepe, O. Vaccarelli, "Device and process for the contemporary capture of standard and plenoptic images". International patent WO2019064047 published on 4/4/2019 (PCT/IB2017/055842 of 26/09/2017), extended to EU, USA, Cina
3. M. D'Angelo, F. V. Pepe, A. Scagliola, F. M. Di Lena, A. Garuccio, "Dispositivo e procedimento per l'acquisizione di immagini plenottiche microscopiche con attenuazione della turbolenza", Italian patent n. 102018000007857 from 03/08/2018, extended as international patent WO2020026093 published on 6/2/2020 (PCT/IB2019/056370 from 25/07/2019), currently being deposited in EU, USA, Cina

4. F. M. Di Lena, M. D'Angelo, F. V. Pepe, A. Garuccio, "Process and apparatus for the capture of plenoptic images between arbitrary planes". International patent WO2020194025 published on 01/10/2020 (PCT/IB2019/052351 from 22/03/ 2019), currently being deposited in EU, USA, Cina
5. M. D'Angelo, A. Garuccio, G. Massaro, F. V. Pepe, "Hyperspectral imaging device and method." International patent application PCT/IB2020/062131 from 17/12/2020

SUMMARY OF PUBLICATIONS (https://www.scopus.com/authid/detail.uri?authorId=7006065396):

57 publications

> 1700 citations

h-index 11

Most relevant pubblications:

- F.M. Di Lena, G. Massaro, A. Lupo, A. Garuccio, F.V. Pepe, M. D'Angelo, *Correlation plenoptic imaging between arbitrary planes,* **Optics Express** 28, 35857 (2020)
- A. Scagliola, F. Di Lena, A. Garuccio, M. D'Angelo, F.V. Pepe, *Correlation plenoptic imaging for microscopy applications*, **Physics Letters A** 384, 126472 (2020)
- E. De Scisciolo, F. Di Lena, A. Scagliola, A. Garuccio, F.V. Pepe, A. Avella, I. Ruo-Berchera, M. D'Angelo, *Nonclassical noise features in a correlation plenoptic imaging setup,* **International Journal of Quantum Information** 18 (01) (2020).
- G. Scala, M. D'Angelo, A. Garuccio, S. Pascazio, F.V. Pepe, *Signal-to-noise properties of correlation plenoptic imaging with chaotic light*, **Physical Review A** 99, 053808 (2019)
- F. Di Lena, F. V. Pepe, A. Garuccio, M. D'Angelo, *Correlation plenoptic imaging: An overview*, **Applied Sciences** 8, 1958 (2018)
- F. Di Lena, F. V. Pepe, A. Mazzilli, A. Garuccio, G. Scarcelli, M. D'Angelo, *Plenoptic imaging through correlation*, **Nuovo Cimento C** 41, 106 (2018)
- F.V. Pepe, F. Di Lena, A. Mazzilli, G. Scarcelli, M. D'Angelo, *Diffraction-Limited Plenoptic Imaging with Correlated Light*, **Physical Review Letters** 119, 243602 (2017)
- F.V. Pepe, O. Vaccarelli, A. Garuccio, G. Scarcelli, M. D'Angelo. *Exploring plenoptic properties of correlation imaging with chaotic light*. **Journal Of Optics** 19, 114001 (2017)
- M. Cassano, M. D'Angelo, A. Garuccio, T. Peng, Y. Shih, V. Tamma. *Spatial interference between pairs of disjoint optical paths with a single chaotic source*. **Optics Express** 25, 6589 (2017)
- M. D'Angelo, A. Mazzilli, F.V. Pepe, A. Garuccio, and V. Tamma. Characterization of two distant double-slits by chaotic light second-order interference. **Scientific Reports** 7, 2247 (2017)
- M. D'Angelo, F.V. Pepe, A. Garuccio, G. Scarcelli, *Correlation Plenoptic Imaging,* **Physical Review Letters** 116, 223602 (2016) [selected for the cover]
- F.V. Pepe, G. Scarcelli, A. Garuccio, and M. D'Angelo. *Plenoptic imaging with second-order correlations of light*. **Quantum Measurement & Quantum Metrology** 3, 20 (2016)
- F.V. Pepe, F. Di Lena, A. Garuccio, G. Scarcelli and M. D'Angelo, *Correlation Plenoptic Imaging With Entangled Photons*. Technologies 4, 17 (2016)
- L. Motka, B. Stoklasa, M. D'Angelo, P. Facchi, A. Garuccio, Z. Hradil, S. Pascazio, F.V. Pepe, Y.S. Teo, J. Rehacek and L.L. Sanchez-Soto. *Optical resolution from Fisher information*. **European Physics Journal Plus** 131, 130 (2016).
- M. D'Angelo. *Toward ghost imaging with cosmic ray muons*. **Nuovo Cimento Della Società Italiana Di Fisica C** 35, 243 (2012)
- M. D'Angelo, A. Garuccio, V. Tamma. *Toward real maximally path-entangled N-photon-state sources*. **Physical Review A** 77, 063826 (2008)
- M. D'Angelo, A. Zavatta, V. Parigi, M. Bellini. *Tomographic test of Bell's inequality for a time-delocalized single photon*. **Physical Review A** 74, 052114 (2006)
- A. Zavatta, M. D'Angelo, V. Parigi, M. Bellini. *Remote preparation of arbitrary time-encoded single-photon ebits*. **Physical Review Letters** 96, 020502 (2006)
- M. D'Angelo, Y.H. Shih. *Quantum imaging*. **Laser Physics Letters** 2, 567 (2005)

- M. D'Angelo, A. Valencia, M.H. Rubin, Y. Shih. *Resolution of quantum and classical ghost imaging*. **Physical Review A** 72, 013810 (2005)
- A. Valencia, G. Scarcelli, M. D'Angelo M, Y. Shih. *Two-photon imaging with thermal light*. **Physical Review Letters** 94, 063601 (2005)
- M. D'Angelo, Y.H. Kim, S.P. Kulik, Y. Shih. *Identifying entanglement using quantum ghost interference and imaging.* **Physical Review Letters** 92, 233601 (2004)
- M. D'Angelo, M.V. Chekhova, Y. Shih. *Two-photon diffraction and quantum lithography*. **Physical Review Letters** 87, 013602 (2001)

INVITED TALKS AT NATIONAL AND INTERNATIONAL CONFERENCES:

1. "Quantum imaging for space objects", IGARSS 2020, 26 Sept.- 2 Oct. 2020
2. "Quantum plenoptic imagine", Sensing with quantum light (SQL20), 6-9 Sept. 2020
3. "Qu3D", QT within INFN, Padova, 20-21 Jan. 2020
4. "Adavnces in Correlation Plenoptic Imaging", IQIS 2019, Milano, 9-12 Sept. 2019
5. "Correlation Plenoptic imaging", OSA Imaging and Applied Optics, Munich 24-27 June 2019
6. "Correlation plenoptic imaging", SPIE Optical Metrology, Munich, 25-29 June 2017
7. "Correlation plenoptic imaging", Quantum 2017, Torino , 8-12 May 2017
8. "Toward ghost imaging with cosmic ray muons", SPIE Optics + Photonics - Quantum Communications and Quantum Imaging IX, San Diego, CA, 21-25 Aug. 2011
9. "Quantum lithography, an overview: from working principle to reality", SPIE's 53nd Annual Meeting - Quantum Communications and Quantum Imaging VI, San Diego, CA, 12-14 Aug. 2008
10. "Quantum lithography, an overview: from working principle to reality", Advances in Foundations of Quantum Mechanics and Quantum Information with atoms and photons, Torino, 19-23 May 2008
11. "Is entanglement dispensable in Quantum Lithography?", SPIE's 52nd Annual Meeting - Quantum Communications and Quantum Imaging V, San Diego, CA, 26-30 Aug. 2007
12. "Remotely prepared single-photon time-encoded ebits: Tomographic characterization and Bell's inequality test", M. Bellini (invitato), Milena D'Angelo (speaker), SPIE's 51st Annual Meeting – Quantum Communications and Quantum Imaging IV, San Diego, CA, 13-17 Aug. 2006
13. "Is entanglement dispensable in quantum lithography?", SPIE's 51st Annual Meeting, - Quantum Communications and Quantum Imaging IV, San Diego, CA, 13-15 Aug. 2006
14. "Is entanglement dispensable in quantum lithography?", Advances in the Foundations of Quantum Mechanics and Quantum Information with atoms and photons, Torino, 2-5 May 2006
15. "Remotely prepared single-photon time-encoded ebits: Tomographic characterization and Bell's inequality test", 36th Winter Colloquium on the Physics of Quantum Electronics, Snowbird, Utah, 2-6 Jan., 2006)
16. "Beyond the Heisenberg uncertainty", SPIE's 49th Annual Meeting- Quantum Communications and Quantum Imaging II, Denver, CO, 2-6 Aug. 2004

TEACHING ACTIVITY:

- Courses at the Graduate and Undergraduate level:

2016-pres: Modern Optics Lab (Master in Physcs)

2013-2015: Lab on matter-radiation interaction (Master in Physcs)

2012-2015: Modern Optics Lab (School for Physics Teachers TFA / PAS)

2014: Technological applications of quantum correlations – part 1 (Master within project PON "Sistema")

2014: Technological applications of quantum correlations – part 2 (Master within project PON "Sistema")

2010-14: Lab on optical phenomena (Piano Lauree Scientifiche)

2011-12: Quantum optics (PhD school in Physics)

2009-12: OPtics and junction devices lab (Bachelor in Material Sciences)

- Lab assistant:

2015-pres: Foundations of quantum optics (Master in Physics)

2007-08 & 2015-pres: Physics 2 lab (Bachelor in Physics)

2009-2015: Foundations of modern optics (Master in Physics)

2015: Lab on matter-radiation interaction (Master in Physcs)

2008-2014: Physics 1 lab (Bachelor in Physics)

2010-11: Optoelectronics (Master in Physics)

2008-09: Modern Physics lab (Progetto Lauree Scientifiche)

RECOGNITIONS AND AWARS:

1. Intellectual Property Award 2019 from MISE-UBIM for the most promising patenting the field of life science
2. Recognition for the best oral presentation in the XCVII Congresso Nazionale SIF, L'Aquila, 26 - 30 Sept. 2011 ("Toward ghost imaging with cosmic-ray muons"), and consequent publication of a paper in the journal "Il Nuovo Cimento"
3. UMBC Graduate School Dissertation Fellowship (Aug.-Dec. 2004)Intellectusal Property Award del MISE-UIBM 2019 per il settore life science (1° su oltre 70 partecipanti)
4. Menzione speciale per la comunicazione al XCVII Congresso Nazionale SIF, L'Aquila, 26 - 30 Settembre 2011: "Toward ghost imaging with cosmic-ray muons", e conseguente opportunità di pubblicazione a singolo nome su “Il Nuovo Cimento”
5. Dissertation Fellowship Award della Graduate School della University of Maryland, Baltimore County (UMBC) - Baltimore-MD, USA

CONFERENCE COMMITTEE MEMBER AND CHAIR:

Summer School "Quantum Optical Technologies in Apulia” (financed by Regione Puglia, to be held on 21-25 Sept. 2021)

2008-pres.: SPIE Optics and Photonics Annual Meeting, "Quantum Communications and Imaging", San Diego-CA, USA

2015-pres: Workshop ad memoria of Carlo Novero, "Quantum", Torino

National congress SISFA 2017, Bari, 26-29 Sept. 2017

SILS 2016, Bari, 21-23 Sept. 2016

IQIS 2015, Monopoli (BA), 10-12 Sept. 2015

NDES 2013, Bari, 10-12 July 2013

OTHER INFORMATIONS:

Tutor of 4 PhD thesis in Physics

Tutor of 12 Master thesis in Physics (5 within the last 2 years)

More than 55 talks at international conferences

More than 10 talks within events for scientific dissemination (within the last 5 years)

Referee for scientific journal: Nature Photonics, Physical Review Letters, Optics Letters, Optics Express, Europhysics Letters, Applied Physics Lettes, Physical Review A, Physics Letters A, Journal of Modern Optics, Optics Communications, Foundations of Physics, Journal of Lightwave Technology

Active scientific collaborations: INFN, INRIM, EPFL (Svizzera), Palacky Univ. Olomouc (Rep. Ceca), Royal Academy of Science (Svezia), UMB e UMBC (USA); Planetek Italia, Planetek Hellas, CIRA