Deliverable Report

Deliverable No: D5.8

Deliverable Title: Leaflets and press releases on project results

Grant Agreement number: 255914

Project acronym: PHORBITECH

Project title: A Toolbox for Photon Orbital Angular Momentum Technology

Project website address: www.phorbitech.eu

Name, title and organisation of the scientific representative of deliverable's lead beneficiary (task leader):
Prof. Lorenzo Marrucci
Università degli Studi di Napoli Federico II
Naples, Italy

Deliverable table

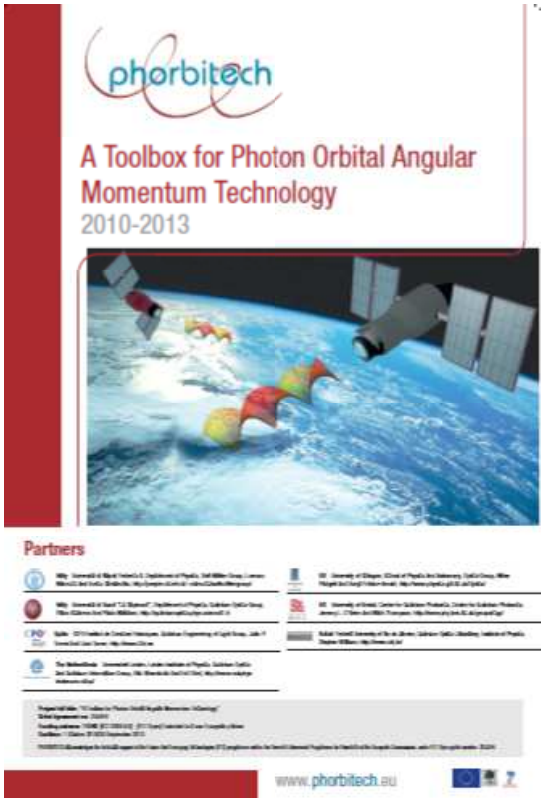
Deliverable no.	D5.8
Deliverable name	Leaflets and press releases on project results
WP no.	5
Lead beneficiary no.	1 (UNAP)
Nature	O
Dissemination level	PU
Delivery date from Annex I	Month 36
Actual delivery date	27 September 2013

D5.8) Leaflets and press releases on project results:

Excerpt from Annex I: Leaflets and/or brochures on the project final results, for distribution at the Phorbitech final workshop and other events. Press releases on the project most important achievements. [month 36]

A) Leaflet and poster on PHORBITECH results

A leaflet and a poster describing PHORBITECH's main results have been developed. They were designed to be graphically appealing and includes brief information about the project (name, funding scheme and list of participating institutions), main results and publications. To ensure effective dissemination to experts and non-experts, a few basic concepts have been included explained in an easy-to-understand, attractive fashion, and illustrated with images related to the results obtained within the project by consortium partners. The leaflet is targeted to a technical and non-technical audience and is intended for distribution at medium/large scientific events and/or public-at-large events.



The leaflet, and corresponding poster, were distributed during the ICOAM 2013 meeting held in Glasgow in June 2013. In addition, each partner distributed some leaflets and poster at its institution.

The leaflet is also available for download on the PHORBITECH website at the "Dissemination to the General Public" webpage

Leaflet and poster are enclosed (appendixes 1 & 2).

B) Press releases on PHORBITECH results

Throughout the three years of PHORBITECH project, we actively disseminated the results achieved within the project through press releases issued by partner press offices (University press office, CNR, etc). In particular, the press interest rose towards some important PHORBITECH results that may have an impact on the society.

The press releases on PHORBITECH publications of the first two years of project have been reported in deliverable "D5.4. Popularization of scientific results" and will not be listed here.

Therefore, below are the press release and press articles, with links to the original articles and weblinks to the original source of the PHORBITECH publications of the third year of project.

Full text of press releases, articles and weblinks are available at the PHORBITECH webpage: http://www.phorbitech.eu/dissemination-the-general-public-2.htm

A. Integrated compact optical vortex beam emitters, Xinlun Cai, Jianwei Wang, Michael J. Strain, Benjamin Johnson-Morris, Jiangbo Zhu, Marc Sorel, Jeremy L. O'Brien, Mark G. Thompson, Siyuan Yu, Science, 19 October 2012.

Press releases

Optical vortices on a chip. Issued: 18 October 2012 by Bristol University. Available at www.bristol.ac.uk/news/2012/8870.html.

Science Magazine Cover Photo — 19 October 2012, 338 (6105)
www.sciencemag.org/content/338/6105.cover-expansion

Press and web articles

1. China's Advanced Sciences-Chinese Defence, 20 Oct 2012, Page 55 www.chinesedefence.com/forums/science-technology/411-chinas-advanced-sciences-55.html
2. Ideas, Inventions And Innovations. Optical Vortices On A Chip. 29 October 2012. http://nanopatentsandinnovations.blogspot.it/2012/10/optical-vortices-on-chip.html
3. Phys.org Integrated optical vortices on a chip (w/ Video) 18 October 2012 http://phys.org/news/2012-10-optical-vortices-chip.html
4. Nanotech Japan 29 October 2012 (in Japanese) http://www.nanonet.go.jp/mujltdh5w-281
5. News from Silicon Valley. Quantum Communication 12 October 2012 www.newsfromsiliconvalley.com
6. Potonics.com Optical Vortex Beams Emit on Silicon. 18 October 2012 http://www.photonics.com/Article.aspx?AID=52139
7. Science Podcast. Interview. 19 October 2012 (Audio) www.sciencemag.org/content/338/6105/363/suppl/DC2
8. Tech Fragments. Silicon Optical Waveguide Vortex Beam Emitters. 29 October 2012 www.techfragments.com/1709/optical-waveguide-vortex-beam/
9. Eureka Alert. Twisting Light on a Chip. October 2012 www.eurekalert.org/multimedia/pub/48925.php
10. Science Net, China Integrated Compact Optical Vortex Beam Emitters. doc.sciencenet.cn/DocInfo.aspx?id=14436
11. Science Daily. Optical Vortices On a Chip: Integrated Arrays of Emitters of 'Optical Vortex Beams' On a Silicon Chip. 18 October 2012 http://www.sciencedaily.com/releases/2012/10/121018141840.htm

B. A Quantum Delayed-Choice Experiment. A. Peruzzo, P. Shadbolt, N. Brunner, S. Popescu, J.L. O'Brien. Science 338; 6107 :634-637 (2012)

Press release

Bristol scientists perform new experiment to solve the 'one real mystery' of quantum mechanics
Issued: 1 November 2012 by Bristol University. Available at:
http://www.bristol.ac.uk/news/2012/8889.html

Press and web articles

1. New Scientist. Entangle Schrödinger's cat to up its quantum weirdness. 1 November 2012. http://www.newscientist.com/article/dn22453-entangle-schrodingers-cat-to-up-its-quantum-weirdness.html#.UkLgEoZM9Ps
2. Huffington Post. Is Light A Particle Or Wave? 'Quantum Nonlocality' Experiment Spotlights Dual Nature Of Light. 5 November 2012 http://www.huffingtonpost.com/2012/11/05/light-particle-wave-quantum-nonlocality_n_2076011.html
3. Good News. Measured for the first time the ambiguous nature of the light. 4 November 2012 http://goodnews.ws/blog/2012/11/04/measured-for-the-first-time-the-ambiguous-nature-of-the-light/
4. Phys.org 'One real mystery of quantum mechanics': Physicists devise new experiment. 1 November 2012 http://phys.org/news/2012-11-real-mystery-quantum-mechanics-physicists.html
5. Science Daily. Particle and Wave-Like Behavior of Light Measured Simultaneously. 1 November 2012 http://www.sciencedaily.com/releases/2012/11/121101141107.htm
6. Live Science. Quantum Mystery of Light Revealed by New Experiment. 5 November 2012. http://www.livescience.com/24509-light-wave-particle-duality-experiment.html
7. Scientific American. Quantum Flip-Floppers: Photon Findings Add to Mystery of Wave-Particle Duality. 6 November 2012. http://www.scientificamerican.com/article.cfm?id=quantum-delayed-choice

C. Experimental implementation of a Kochen-Specker set of quantum tests. V. D'Ambrosio, I. Herbauts, E. Amselem, E. Nagali, M. Bourennane, F. Sciarrino, A. Cabello. Phys. Rev. X 3, 011012 (2013).

Press and web articles

1. Nature, News in Focus. Photons test quantum paradox. Nature, Vol 496, 18 April 2013. www.nature.com/news/photons-test-quantum-paradox-1.12808#quantum
2. HepInfo.net Experimental Implementation of a Kochen-Specker Set of Quantum Tests. 15 February 2013. http://202.38.128.216/hepinfo.net/node/97698

D. Joining the quantum state of two photons into one. C. Vitelli, N. Spagnolo, L. Aparo, F. Sciarrino, E. Santamato, L. Marrucci. Nature Photonics 7, 521–526 (2013).

Press release

Compressione e decompressione fotonica dell'informazione quantistica. Issued by University of Naples Federico II.

Press and web articles

1. Nature, News. Quantum meld brings photons together. 9 May 2013 http://www.nature.com/news/quantum-meld-brings-photons-together-1.12942
2. Nature Photonics, News and Views. Two become one. Photonics, Vol 7, July 2013.
3. e! Science News. Quantum Meld Brings Photons Together. 9 May 2013.
4. esciencenews.com/sources/scientific.american/2013/05/09/quantum.meld.brings.photons.together
5. Scientific American. Quantum Meld Brings Photons Together. 9 May 2013. http://www.scientificamerican.com/article.cfm?id=quantum-meld-brings-photons-together

E. Calculating unknown eigenvalues with a quantum algorithm. X.Q. Zhou, P. Kalasuwan, T.C. Ralph, J.L. O'Brien. Nature Photonics 7, 223–228 (2013)

Press release

Quantum algorithm breakthrough. Issued: 24 February 2013 by Bristol University. Available at: http://www.bris.ac.uk/news/2013/9162.html

Press and web articles

1. Before it's news. Researchers demonstrate algorithm for practical quantum computing. 4 March 2013. http://beforeitsnews.com/earthquakes/2013/03/researchers-demonstrate-algorithm-for-practical-quantum-computing-2451470.html
2. EurekaAlert. Quantum algorithm breakthrough. 24 February 2013. http://www.eurekalert.org/pub_releases/2013-02/uob-qab022213.php
3. Phys.org. Quantum algorithm breakthrough. 24 February 2013. http://phys.org/news/2013-02-quantum-algorithm-breakthrough.html
4. KurzweilAI. Quantum algorithm breakthrough. 26 February 2013. http://www.kurzweilai.net/quantum-algorithm-breakthrough
5. Science daily. Quantum algorithm breakthrough: Performs a true calculation for the first time. 24 February 2013. http://www.sciencedaily.com/releases/2013/02/130224142829.htm

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Grant agreement no: 255914
Funding scheme: THEME [ICT-2009.8.0] - [FET Open] Extended to a non-European partner
Duration: 1 October 2010/30 September 2013
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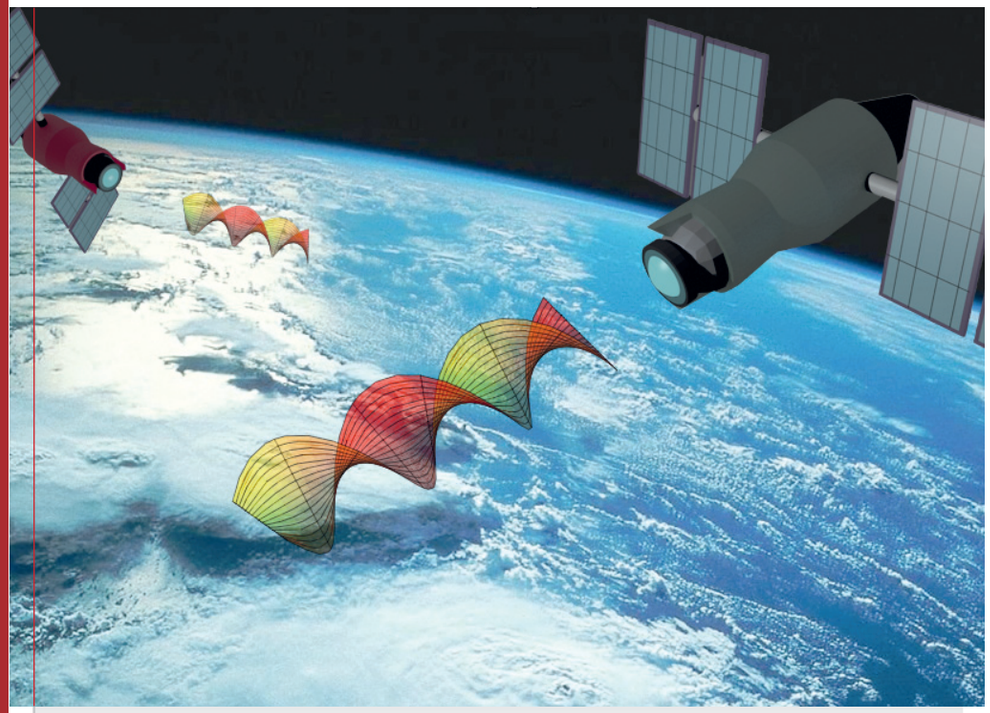
Brazil Federal University of Rio de Janeiro, Quantum Optics Laboratory, Institute of Physics, Stephen Walborn, http://www.ufrj.br/

PHORBITECH acknowledges the financial support of the Future and Emerging Technologies (FET) programme within the Seventh Framework Programme for Research of the European Commission, under FET-Open grant number: 255914.

A Toolbox for Photon Orbital Angular Momentum Technology

2010-2013



www.phorbitech.eu

Phorbitech vision

To make OAM generation, manipulation, transmission and detection as easy and commonplace as currently is the management of the polarization degree of freedom of light, both in the classical regime and in the quantum regime.

To turn OAM into a "second polarization" of light for use in photonics

PHORBITECH TARGETED BREAKTHROUGH

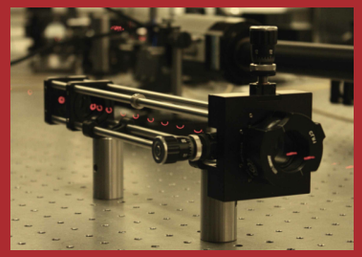
To develop a "toolbox" of highly innovative optical components and devices for the full and convenient control of OAM, including its generation, manipulation, transmission and detection.

Phorbitech results

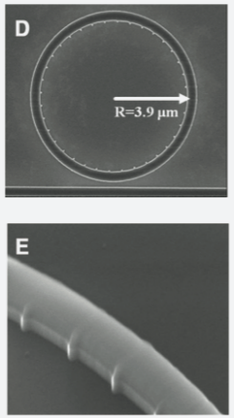
OAM toolbox devices

- 2 entirely new working devices added to the OAM toolbox
- 1 device (the OAM sorter) greatly improved

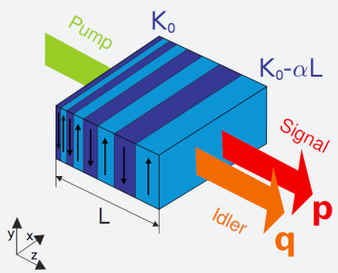
OAM "phase-unfolding" for OAM sorting and detecting



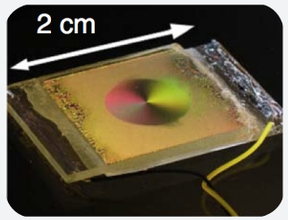
OAM vector beam emitters from integrated resonators



Chirped quasi phase-matched spontaneous parametric down conversion (SPDC) for high-dimensional spatial entanglement (OAM + radial)



Toolbox for alignment-free quantum communication (based on new q-plates with q = ½)



PHORBITECH highlights

85 scientific articles in high-quality journals, including 3 in *Science*, 8 in *Nature* journals (*N. Physics*, *N. Photonics*, and *N. Communications*), and 12 in *Physical Review Letters*.

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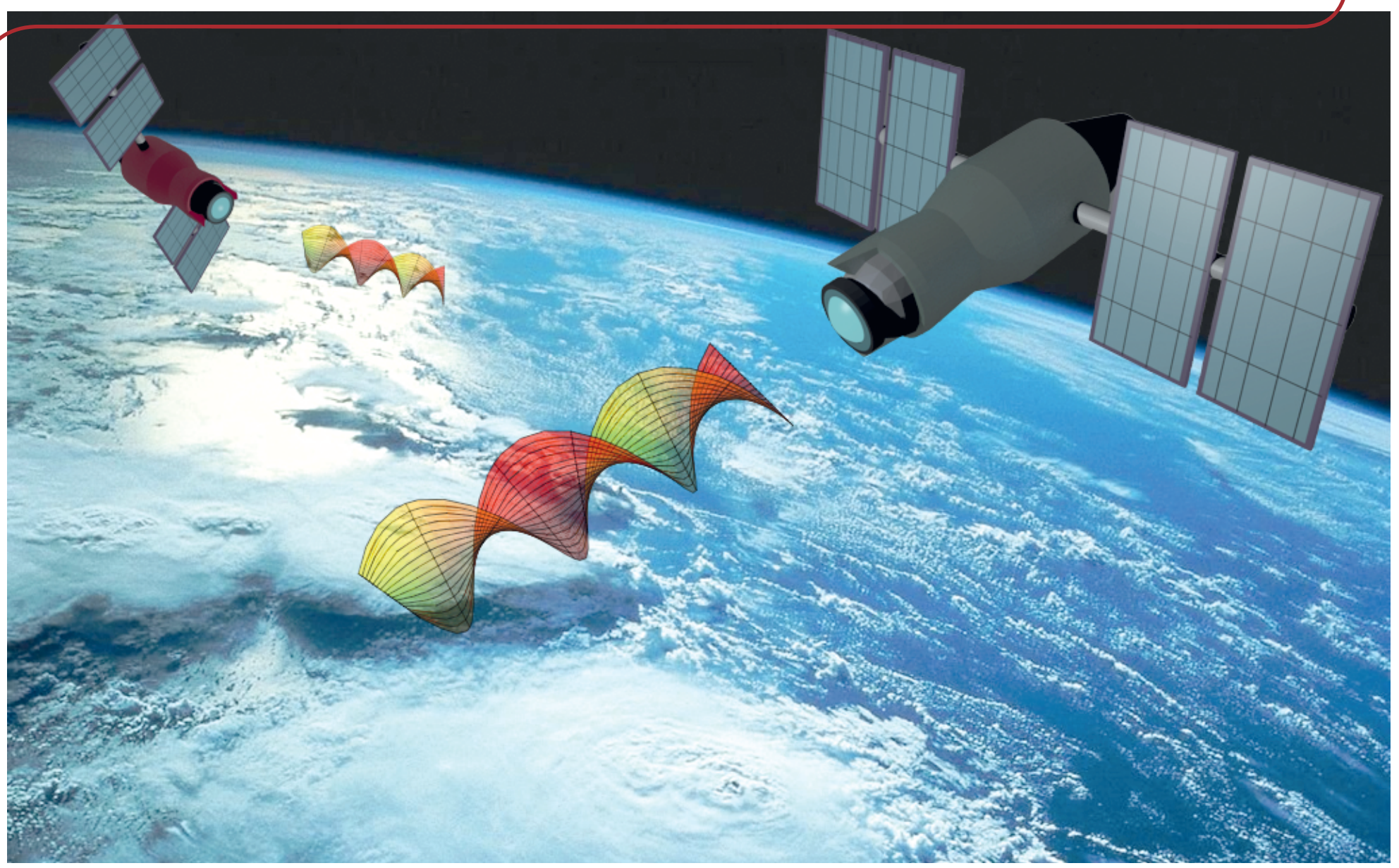
A Toolbox for Photon Orbital Angular Momentum Technology

2010-2013



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