

# Curriculum Vitae

## Eleni Diamanti

### Contact

- Address : Laboratoire Traitement et Communication de l'Information  
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- Homepage : [www.telecom-paristech.fr/~diamanti](http://www.telecom-paristech.fr/~diamanti)

### Employment

- 2009 - present : LTCI, CNRS - Télécom ParisTech  
Full-time CNRS researcher
- 2006 - 2008 : LCFIO, CNRS - Université Paris-Sud XI - Institut d'Optique  
Postdoctoral research fellow

### Education

- 2014 : Université Paris Diderot  
Habilitation à Diriger des Recherches (HDR) in Physics
- 2000 - 2006 : Stanford University  
PhD in Electrical Engineering
- 2002 : Stanford University  
Master in Electrical Engineering
- 1995 - 2000 : National Technical University of Athens  
Diploma in Electrical and Computer Engineering

### Awards and Fellowships

- Marie-Curie Intra-European Fellowship, 2006 - 2008
- Marie-Curie International Reintegration Grant, 2006 - 2008
- Stanford Graduate Fellowship, 2000 - 2003
- Awards from the Hellenic Scholarship Foundation and the Technical Chamber of Greece for highest academic achievement, 1996-1999
- Award from the National Technical University of Athens for taking the first place in the national University entry exams, 1995

### Research Projects

#### Coordination

- Partner University Fund France - USA project CRYSP "Quantum cryptography with silicon photonics", 2015 - 2017
- Ile-de-France Region Nano-K equipment project QUIN "Quantum communications with integrated optics and nanophotonics", 2013 - 2017
- Ile-de-France Region Equipment project "Sécurité Quantique", 2010 - 2014

- ANR Blanc-International France-Canada project FREQUENCY “Fundamental research in quantum networks and cryptography”, 2010 - 2013

### Participation

- ANR project QRYPTOS “Quantum cryptography on silicon”, 2014 - 2017
- ANR project COMB “Continuous-variable measurement based quantum computing”, 2014 - 2017
- Ville de Paris Emergences project CiQWii “Cryptography in a Quantum World : from inception to implementation”, 2012 - 2015
- CHIST-ERA European Coordinated project HIPERCOM “High performance coherent quantum communications”, 2011 - 2014
- ANR project QUANTUM-WDM “Wavelength division multiplexing enabled quantum key distribution”, 2012 - 2014
- European Union FP7 Marie-Curie IAAP project QCERT “Quantum key distribution certification”, 2010 - 2013
- ANR project eQUANET “Embryonic quantum network at a telecom wavelength”, 2009 - 2012
- ANR project SEQUIRE “Symmetric encryption with quantum key renewal”, 2008 - 2011
- Bilateral CNRS-JST (Japan) project “Quantum computation : theory and feasibility”, 2008 - 2010
- European Union FP6 Integrated project SECOQC “Secure communication based on quantum cryptography”, 2004 - 2008

### Teaching Activities

- “Quantum communications”, Master Optique, Matière, Plasma, Université Paris Sud 11, 2013 - present
- “Theoretical quantum information”, Master Dispositifs Quantiques, Université Paris Diderot 7, 2012 - present
- “Bases de la mécanique quantique”, Télécom ParisTech, 2009 - present
- “Calcul et communications quantiques”, Télécom ParisTech, 2009 - present
- “Quantum entanglement for communications”, ATHENS Graduate student exchange program, Télécom ParisTech, 2009 - present
- “Télécommunications quantiques”, Institut d’Optique Graduate School, 2008 - present
- Lecture on quantum cryptography and communications to preparatory school professors, LIESSE program, Télécom ParisTech, 2012, 2014
- Travaux Pratiques en Optique, Institut Universitaire de Technologie d’Orsay, 2007 - 2008
- Teaching assistant for “Fundamentals of Noise Processes”, “Applied Quantum Mechanics I & II”, Stanford University, 2003 - 2005

### Students and Post-docs

#### PhD

- Niraj Kumar, 2015 - present
- Mauro Persechino, 2014 - present
- Julien Trapateau, 2014 - present
- Adel Sohbi, 2012 - present
- Anna Pappa, 2010 - 2014 (now post-doc at University College London)

- Joe Ghalbouni, 2010 - 2013 (now faculty at the University of Lebanon)
- Paul Jouguet, 2010 - 2013 (now financial engineer at Société Générale)

#### Post-docs

- Adeline Orioux, 2015 - present
- Bill Plick, 2014 - present
- Thomas Lawson, 2011 - 2014
- Aikaterini Mandilara, 2012 (now faculty at Nazarbayev University, Kazakhstan)
- Pascal Desfonds, 2011 - 2012 (now post-doc at ESPCI)
- Imad Agha, 2010 - 2011 (now faculty at the University of Dayton, Ohio, USA)
- Sara Felloni, 2010 - 2011 (now in private sector)

### Professional Activities

#### Steering Committees

- Groupe de Recherche Information Quantique : Fondements et Applications, 2010 - present
- Conference on Quantum Cryptography (QCRYPT), 2013 - present

#### Program Committees

- GdR Information Quantique : Fondements et Applications Colloquia, Paris, November 2013, Grenoble, November 2012, Paris, November 2011, Nice, March 2011, Lyon, November 2014
- Quantum Africa II, Northern Drakensberg, South Africa, September 2012
- Developments of Computational Models (DCM), Zurich, Switzerland, July 2011
- Conference on Lasers and Electro-Optics/European Quantum Electronics Conference (CLEO Europe/EQEC), Munich, Germany, May 2011

#### Organizing Committees

- Conference on Quantum Cryptography (QCRYPT), Paris, France, September 2014
- Quantum Physics and Computer Science (QPCS) Spring School, Sèvres, France, June 2014
- Physics and Information 2013 Workshop, Paris, France, April 2013
- High Performance Coherent Quantum Communications Meeting and Continuous Variable Quantum Information Processing (CV-QIP'11) Workshop, Paris, France, September 2011
- Workshop on Post-Quantum Security Models, Paris, France, October 2010
- Quantum Information in Paris (QuPa) quarterly seminar series, 2009 - present

#### Reviewing

- Projects : Austrian Research Promotion Agency ; Vienna Science and Technology Fund ; Czech Science Foundation ; University of Toronto ; Qatar National Research Fund ; CHIST-ERA Erant Program ; Chinese Academy of Sciences ; Polish National Science Center.
- Journals : Nature Physics, Nature Photonics, Nature Communications, Physical Review X, Physical Review Letters, Physical Review A, New Journal of Physics, Applied Physics Letters, Optics Letters, Optics Express, Optics Communications, European Physics Letters, IEEE Journal of Selected Topics in Quantum Electronics, Progress in Informatics, Physica Scripta.

## Other responsibilities

- Vice Director of the Paris Center for Quantum Computing (PCQC), 2014 - present
- Guest Editor for the Special Issue on Quantum Communications and Cryptography of the IEEE Photonics Society Journal of Selected Topics in Quantum Electronics (JSTQE), 2015

## Publications

- **Violating multipartite Bell inequalities without reference frames**  
C. Furkan Senel, T. Lawson, M. Kaplan, D. Markham, E. Diamanti  
quant-ph arXiv : 1408.1837 (2014)
- **Decoherence effects on the nonlocality of symmetric states**  
A. Sohbi, I. Zaquine, E. Diamanti, D. Markham  
Physical Review A 91, 022101 (2015)
- **Nonlocality and conflicting interest games**  
A. Pappa, N. Kumar, T. Lawson, M. Santha, S. Zhang, E. Diamanti, I. Kerenidis  
Physical Review Letters 114, 020401 (2015)
- **Reliable experimental quantification of bipartite entanglement without reference frames**  
T. Lawson, A. Pappa, B. Bourdoncle, I. Kerenidis, D. Markham, E. Diamanti  
Physical Review A 90, 042336 (2014)
- **Experimental plug and play quantum coin flipping**  
A. Pappa, P. Jouguet, T. Lawson, A. Chailloux, M. Legré, P. Trinkler, I. Kerenidis, E. Diamanti  
Nature Communications 5, 3717 (2014)
- **Preventing calibration attacks on the local oscillator in continuous-variable quantum key distribution**  
P. Jouguet, S. Kunz-Jacques, E. Diamanti  
Physical Review A 87, 062313 (2013)
- **Experimental demonstration of long-distance continuous-variable quantum key distribution**  
P. Jouguet, S. Kunz-Jacques, A. Leverrier, P. Grangier, E. Diamanti  
Nature Photonics 7, 378 (2013)  
News and Views : Nature Photonics 7, 350 (2013)
- **Optimal photon-pair single mode coupling in narrow-band spontaneous parametric down conversion with arbitrary pump profile**  
J.-L. Smir, M. Deconinck, R. Frey, I. Agha, E. Diamanti, I. Zaquine  
Journal of the Optical Society of America B 30, 288 (2013)

- **Experimental wavelength division multiplexed photon pair distribution**  
J. Ghalbouni, I. Agha, R. Frey, E. Diamanti, I. Zaquine  
Optics Letters 38, 34 (2013)
- **Analysis of imperfections in practical continuous-variable quantum key distribution**  
P. Jouguet, S. Kunz-Jacques, E. Diamanti, A. Leverrier  
Physical Review A 86, 032309 (2012)
- **Multipartite entanglement verification resistant against dishonest parties**  
A. Pappa, A. Chailloux, S. Wehner, E. Diamanti, I. Kerenidis  
Physical Review Letters 108, 260502 (2012)
- **Field test of classical symmetric encryption with continuous-variable quantum key distribution**  
P. Jouguet, S. Kunz-Jacques, T. Debuisschert, S. Fossier, E. Diamanti, R. Alléaume, R. Tualle-Brouri, P. Grangier, A. Leverrier, P. Pache, P. Painchault  
Optics Express 20, 14030 (2012)
- **Analysis of elliptically polarized maximally entangled states for Bell inequality tests**  
A. Martin, J.-L. Smirr, F. Kaiser, E. Diamanti, A. Issautier, O. Alibert, R. Frey, I. Zaquine, S. Tanzilli  
Laser Physics 22, 1105 (2012)
- **Practical quantum coin flipping**  
A. Pappa, A. Chailloux, E. Diamanti, I. Kerenidis  
Physical Review A 84, 052305 (2011)
- **Intrinsic limitations to the quality of pulsed spontaneous parametric down conversion sources for quantum information applications**  
J.-L. Smirr, R. Frey, E. Diamanti, R. Alléaume, I. Zaquine  
Journal of the Optical Society of America B 28, 832 (2011)
- **Simple performance evaluation of pulsed spontaneous parametric down conversion sources for quantum communications**  
J.-L. Smirr, S. Guilbaud, J. Ghalbouni, R. Frey, E. Diamanti, R. Alléaume, I. Zaquine  
Optics Express 19, 616 (2011)
- **Security of trusted repeater quantum key distribution networks**  
L. Salvail, M. Peev, E. Diamanti, R. Alléaume, N. Lütkenhaus, T. Länger  
Journal of Computer Security 18, 61 (2010)
- **Topological optimization of quantum key distribution networks**  
R. Alléaume, F. Roueff, E. Diamanti, N. Lütkenhaus  
New Journal of Physics 11, 075002 (2009)
- **The SECOQC Quantum Key Distribution Network in Vienna**  
M. Peev, C. Pacher, R. Alléaume, C. Barreiro, J. Bouda, W. Boxleitner, T. Debuisschert,

E. Diamanti, et al.

New Journal of Physics 11, 075001 (2009)

- **The improvement of continuous-variable quantum key distribution systems by using optical preamplifiers**  
S. Fossier, E. Diamanti, T. Debuisschert, R. Tualle-Brouri, P. Grangier  
Journal of Physics B 42, 114014 (2009)
- **Field test of a continuous-variable quantum key distribution prototype**  
S. Fossier, E. Diamanti, T. Debuisschert, A. Villing, R. Tualle-Brouri, P. Grangier  
New Journal of Physics 11, 045023 (2009)
- **Quantum key distribution over 25 km with an all-fiber continuous-variable system**  
J. Lodewyck, M. Bloch, R. García-Patrón, S. Fossier, E. Karpov, E. Diamanti, T. Debuisschert, N. J. Cerf, R. Tualle-Brouri, S. McLaughlin, P. Grangier  
Physical Review A 76, 042305 (2007)
- **100 km differential phase shift quantum key distribution experiment with low-jitter upconversion detectors**  
E. Diamanti, H. Takesue, C. Langrock, M. M. Fejer, Y. Yamamoto  
Optics Express 14, 13073 (2006)  
Featured in the magazine New Scientist and the Japanese financial newspaper Nikkei.
- **1.5- $\mu\text{m}$  single photon counting using polarization-independent upconversion detector**  
H. Takesue, E. Diamanti, C. Langrock, M. M. Fejer, Y. Yamamoto  
Optics Express 14, 13067 (2006)
- **10-GHz clock differential phase shift quantum key distribution experiment**  
H. Takesue, E. Diamanti, C. Langrock, M. M. Fejer, Y. Yamamoto  
Optics Express 14, 9522 (2006)  
Featured in Nature Photonics.
- **Highly nonclassical photon statistics in parametric down conversion**  
E. Waks, B. C. Sanders, E. Diamanti, Y. Yamamoto  
Physical Review A 73, 033814 (2006)
- **1.55  $\mu\text{m}$  photon-counting optical time-domain reflectometry with a single-photon detector based on upconversion in a periodically poled lithium niobate waveguide**  
E. Diamanti, C. Langrock, M. M. Fejer, Y. Yamamoto, H. Takesue  
Optics Letters 31, 727 (2006)
- **Generation of photon number states**  
E. Waks, E. Diamanti, Y. Yamamoto  
New Journal of Physics 8, 4 (2006)

- **Differential phase shift quantum key distribution experiment over 105-km fiber**  
H. Takesue, E. Diamanti, T. Honjo, C. Langrock, M. M. Fejer, K. Inoue, Y. Yamamoto  
New Journal of Physics 7, 232 (2005)
- **Performance of various quantum key distribution systems using 1.55- $\mu\text{m}$  up-conversion single-photon detectors**  
E. Diamanti, H. Takesue, T. Honjo, K. Inoue, Y. Yamamoto  
Physical Review A 72, 052311 (2005)
- **Highly efficient single-photon detection at communication wavelengths by use of up-conversion in reverse-proton-exchanged periodically poled LiNbO<sub>3</sub> waveguides**  
C. Langrock, E. Diamanti, R. V. Roussev, Y. Yamamoto, M. M. Fejer, H. Takesue  
Optics Letters 30, 1725 (2005)
- **Single photons for quantum information systems**  
Y. Yamamoto, C. Santori, G. Solomon, J. Vuckovic, D. Fattal, E. Waks, E. Diamanti  
Progress in Informatics 1, 5 (2005) [Review paper]
- **Direct observation of nonclassical photon statistics in parametric down-conversion**  
E. Waks, E. Diamanti, B. C. Sanders, S. D. Bartlett, Y. Yamamoto  
Physical Review Letters 92, 113602 (2004)
- **Quantum teleportation with a quantum dot single photon source**  
D. Fattal, E. Diamanti, K. Inoue, Y. Yamamoto  
Physical Review Letters 92, 037904 (2004)
- **High efficiency photon number detection for quantum information processing**  
E. Waks, K. Inoue, W. D. Oliver, E. Diamanti, Y. Yamamoto  
IEEE Journal of Selected Topics in Quantum Electronics 9, 1502 (2003) [Invited paper]

### Conference Proceedings

- **Renforcer la sécurité du chiffrement en couplant cryptographie quantique et cryptographie classique**  
T. Debuisschert, S. Fossier, R. Tualle-Brouri, P. Grangier, E. Diamanti, A. Leverrier, R. Alléaume, P. Pache, P. Painchault, P. Jouguet, S. Kunz-Jacques  
Colloque sur les Lasers et l'Optique Quantique (COLOQ'12), Marseille, France, July 2011
- **Quantum key distribution over 25 km using a fiber set-up based on continuous variables**  
J. Lodewyck, M. Bloch, S. Fossier, E. Diamanti, T. Debuisschert, R. Tualle-Brouri, P. Grangier  
Annales de Physique 32(2-3), 163-165 (2007)
- **Quantum key distribution device with coherent states**  
J. Lodewyck, M. Bloch, R. García-Patrón, S. Fossier, E. Karpov, E. Diamanti, T. Debuisschert, N. J. Cerf, R. Tualle-Brouri, S. McLaughlin, P. Grangier

Proceedings of SPIE Optics East 6780, 67800Z (2007)

- **Photon number generation with the visible light photon counter**  
E. Waks, E. Diamanti, Y. Yamamoto  
Proceedings of SPIE Int. Soc. Opt. Eng. 5551, 73 (2004) [Invited paper]
- **Photon counting schemes and performance of non-deterministic nonlinear gates in linear optics**  
S. D. Bartlett, E. Diamanti, B. C. Sanders, Y. Yamamoto  
Proceedings of SPIE Int. Soc. Opt. Eng. 4821, 427 (2002)

### Invited Talks and Seminars

- SPIE Quantum Optics and Quantum Information Processing Conference, Prague, Czech Republic, April 2015
- Heriot-Watt University, Scotland, UK, March 2015
- IDQuantique Winter School, Les Diablerets, Switzerland, January 2015
- PICQUE Integrated Quantum Photonics Workshop, Oxford, UK, January 2015
- Quantum Communication, Measurement and Computing (QCMC) Conference, Hefei, China, November 2014
- Journées Nationales d'Optique Guidée (JNOG 2014), Nice, France, October 2014
- Paris Center for Quantum Computing (PCQC) Inauguration Workshop, Paris, France, August 2014
- Crete Center for Quantum Complexity and Nanotechnology, Heraklion, Crete, Greece, March 2014
- Quantum Games and Protocols Workshop, Simon's Institute, Berkeley, California, USA, February 2014
- International Workshop on Quantum Communication Networks (QCN2014), University of Leeds, UK, January 2014
- London-Paris Quantum Connection Meeting, London, UK, November 2013
- Hot Topics in Physical Informatics (HotPI) Conference, Changsha City, Hunan, China, November 2013
- Groupe de Travail Informatique Quantique Workshop, Nancy, France, October 2013
- Vienna Center for Quantum Science and Technology, Vienna, Austria, September 2013
- International Conference on New Frontiers in Physics (ICNFP), Kolymbari, Crete, Greece, August 2013
- Fundamentals of laser-assisted micro and nano-technologies (FLAMN-13) Conference, Saint Petersburg, Russia, June 2013
- JFLI (Japanese-French Laboratory for Informatics) Meeting on Quantum Information and Computation, Paris, France, March 2013
- Continuous-Variable Quantum Information Processing (CV-QIP'13) Workshop and QSCALE/HIPERCOM Meeting, Paris, France, January 2013
- Quantum Security Meeting, Edinburgh, Scotland, UK, December 2012
- Universidad Complutense de Madrid, Madrid, Spain, November 2012
- Laboratory for Quantum Photonics, Columbia University, New York, USA, April 2012
- High Performance Coherent Quantum Communications Meeting and Continuous Variable Quantum Information Processing (CV-QIP'11) Workshop, Paris, France, September 2011
- Quantum Information in Scotland (Quisco) Workshop, Edinburgh, Scotland, UK, July 2011



- Updating Quantum Cryptography and Communications (UQCC) Conference, Tokyo, Japan, October 2010
- “Mesure, lasers et applications” Workshop, Paris, France, June 2010
- International Conference on Quantum Information and Technology (ICQIT), Tokyo, Japan, December 2009
- Clarendon Laboratory, Oxford University, UK, March 2009
- Groupe de Recherche Information et Communication Quantiques Workshop, Paris, France, October 2008
- Joint Japan Science and Technology (JST) and CNRS Quantum Computation : Theory and Feasibility Workshop, Paris, France, September 2008
- Institute of Electronic Structure and Laser, Foundation of Research and Technology - Hellas, Heraklion, Greece, May 2008
- Theory and Realization of Practical Quantum Key Distribution (TropicalQKD) Workshop, Waterloo, Canada, June 2007
- Physics and Astronomy Department, Open University, Milton Keynes, UK, May 2007
- Laboratoire Pierre Aigrain, Ecole Normale Supérieure, Paris, France, March 2007
- Ecole Nationale Supérieure des Télécommunications, Paris, France, December 2006
- IEEE/LEOS Summer Topical Meeting on Quantum Communications in Telecom Networks, Quebec City, Canada, July 2006
- Quantum Cryptography Group, University of Toronto, Toronto, Canada, July 2006
- Stanford Photonics Research Center (SPRC) Annual Symposium, Stanford, California, USA, September 2005

## Patents

- **Differential phase shift quantum key distribution**  
 Patent number WO2007055683  
 Inventors : Y. Yamamoto, E. Diamanti, E. Waks, K. Inoue, H. Takesue, T.Honjo