

# Quentin Glorieux

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Born August 12<sup>th</sup> 1983 in Paris  
29 years old

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## Education

2007 : Engineer's degree at Institut d'Optique Graduate School, Orsay, France - Specialization in Quantum optics and Atom optics

2007 : Master degree of Optoelectronics from University Paris Sud - 11, Ecole Polytechnique, Palaiseau, France (with highest honors)

2010 : PhD degree at Laboratoire Matériaux et Phénomènes Quantiques (University Paris Diderot) under the supervision of Pr. Thomas Coudreau (with highest honors).

Examination Commission : Pr. Ennio Arimondo, Dr. Philippe Bouyer, Dr. Vincent Boyer, Pr. Thomas Coudreau, Pr. Cristiano Ciuti, Pr. Claude Fabre.

## Full Time Research Experience

Sep 2005 - Jun 2006 : Undergraduate training at LRMH, Champs sur Marne, France. *Laser induced breakdown spectroscopy for atrworks analysis* under the supervision of Dr. Vincent Detalle

Mar 2007 - Sep 2007 : International fellowship at ICFO, Barcelona, Spain. *Trapping and cooling of Ytterbium atoms* under the supervision of Pr. Juergen Eshner

Oct 2007 - Nov 2010 : PhD thesis at Laboratoire Matériaux et Phénomènes Quantiques, Paris, France. *Squeezed light generation with four-wave-mixing in Rb atomic vapor. Theory and experiments.* under the supervision of Pr. Thomas Coudreau

Dec 2010 - Present : Postdoctoral researcher at NIST, Gaithersburg, USA. *Laser cooling and trapping division - Non-linear and quantum optics lab* in the group of Pr. Paul Lett and Pr. William Phillips.

Sep 2012 : European Union Marie Curie Fellow at NIST, Gaithersburg, USA

Nov 2012 - Feb 2013 : Guest Researcher at Australian National University in the Ping Koy Lam's Group.

## Teaching Experience

Assistant at University Paris Nord - Bobigny (96h per year)

- 2007-2008 : Experimental linear optics (60h) and Mathematics lectures (36h)

- 2008-2009 : Experimental physics for undergraduate students (60h) and Wave optics lectures (36h)

- 2009-2010 : Scientific programming with Mathematica (60h) and Mathematics lectures (36h)

Undergraduate students (2) supervision for a duration of 3 and 4 months.

## Publications in international refereed journals

1. *Extracting Spatial Information from Noise Measurements of Multi-Spatial-Mode Quantum States*, A. M. Marino, J. B. Clark, Q. Glorieux, and P. D. Lett, accepted for publication in European Journal of Physics (2012)
2. *Temporally multiplexed storage of images in a gradient echo memory*, Q. Glorieux, J. B. Clark, A. M. Marino, Z. Zhou, and P. D. Lett, Optics Express **20**, 11, 12350, (2012)
3. *Storing a short movie in an atomic vapor* Q. Glorieux, J. B. Clark, A. M. Marino, Z. Zhou, and P. D. Lett, SPIE Newsroom, DOI : 10.1117/2.1201206.004337 (2012)
4. *Imaging with the quantum noise properties of light*, J. Clark, Z. Zhou, Q. Glorieux, K. Jones, A. Marino, P.D. Lett, Optics Express, **20**, 15, pp. 17050-17058 (2012)
5. *Quantum correlations by four-wave mixing in an atomic vapor in a non-amplifying regime: a quantum beam splitter for photons*, Q. Glorieux, S. Guibal, L. Guidoni, J-P. Likforman, T. Coudreau, Phys. Rev. A, **84**, 5, 053826 (2011)
6. *Time-resolved detection of relative-intensity squeezed nanosecond pulses in an  $^{87}\text{Rb}$  vapor*, I. Agha, C. Giarmatzi, Q. Glorieux, T. Coudreau, P. Grangier, G. Messin, New J. Phys. **13** 043030 (2011)
7. *Double-lambda microscopic model for entangled light generation by four-wave-mixing*, Q. Glorieux, R. Dubessy, S. Guibal, L. Guidoni, J-P. Likforman, T. Coudreau, Phys. Rev. A **82**, 033819 (2010)
8. *Trapping and cooling of  $\text{Sr}^+$  ions: strings and large clouds*, S. Removille, R. Dubessy, B. Dubost, Q. Glorieux, T. Coudreau, S. Guibal, J-P. Likforman and L. Guidoni, J. Phys. B: At. Mol. Opt. Phys. **42** 154014 (2009).
9. *Photoionisation loading of large  $\text{Sr}^+$  ion clouds with ultrafast pulses*, S. Removille, R. Dubessy, Q. Glorieux, S. Guibal, T. Coudreau, L. Guidoni and J.-P. Likforman, Applied Phys. B. **97**,1, 47-52 (2009).
10. *Laser induced breakdown spectroscopy (LIBS) : a new analytical technique for in situ study of painted artworks*, V. Detalle, Q. Glorieux, R. Bruder, D. L'Hermite, A. Semerok, Act. Chim. **312**, 98-104 (2007)

## Recently submitted papers to international refereed journals

1. *Generation of pulsed bipartite entanglement using four-wave mixing*, Q. Glorieux, J. B. Clark, N. Corzo-Trejo, and P. D. Lett, submitted to New Journal of Physics (2012)
2. *On demand reading and erasing spatial information in a gradient echo memory*, J. B. Clark, Q. Glorieux, and P. D. Lett, submitted to New Journal of Physics (2012)
3. *Experimental characterization of Gaussian quantum discord and demonstration of sub- and super-additivity in multi-spatial-mode discord generated by four-wave mixing*, U. Vogl, R. T. Glasser, Q. Glorieux, J. B. Clark, N. Corzo-Trejo, and P. D. Lett, submitted to Phys. Rev. A (2012)
4. *Rotation of the noise ellipse for vacuum squeezed light generated via phase sensitive four-wave-mixing in a hot atomic vapor* Q. Glorieux, N. Corzo-Trejo, and P. D. Lett, submitted to Phys. Rev. A (2012)

## Publication in international refereed conference proceedings

1. *Four-wave-mixing in hot atomic vapor for spatially multimode squeezed light generation* Q. Glorieux, J. Clark, N. Corzo-Trejo, Z. Zhou, R. Glasser, A. Marino, U. Vogl, P.D. Lett, Post deadline paper in proceedings of ICQI, Ottawa (2011)
2. *Quantum correlations between intense beams using four-wave-mixing in atomic vapors: theory and experiments*, T. Coudreau, Q. Glorieux, R. Dubessy, L. Guidoni, J. Likforman, S. Guibal, E. Arimondo, Proceedings of CLEO/Europe and EQEC (2011)
3. *Strong quantum correlations in four wave mixing in  $^{85}\text{Rb}$  vapor*, Q. Glorieux, S. Guibal, L. Guidoni, J-P. Likforman, T. Coudreau, Proceedings of SPIE Quantum Optics, 7727, (2010)
4. *Sympathetic cooling in a multi-isotope Sr Coulomb crystal*, S. Removille, Q. Glorieux, T. Coudreau, L. Guidoni and J.-P. Likforman, S. Guibal, Proceedings of SPIE Quantum Optics, 7727, (2010)
5. *A standardized remote monitoring photographic capture system (RM-PCS) for in-situ documentation of corrosion protection system tests*, J. Crawford, C. Degrigny, Q. Glorieux, P. Bugeja and D. Vella, in Proceedings: Strategies for Saving Our Cultural Heritage, pp. 85-92 (2007)

## Communication in international conferences

1. *Temporally multiplexed storage of images in a Gradient Echo Memory*, Poster - ICAP, 2012, Palaiseau, France.
2. *Atomic diffusion effects on the coherent storage of an image using a gradient echo memory in a warm atomic vapor*, Talk - CLEO, 2012, San Jose, CA, USA
3. *Four-wave-mixing in hot atomic vapor for spatially multimode squeezed light generation*, Post deadline talk - International Conference on Quantum Information 2011, Ottawa, Canada.
4. *Quantum correlations between intense beams using four-wave mixing in atomic vapor: theory and experiments*, Talk - European/French Israeli Symposium on Nonlinear and Quantum Optics 2011, Aussois, France.
5. *Generation of twin beams using four-wave mixing: theory and experiments*, Talk - APS Division of Atomic, Molecular and Optical Physics Meeting 2010, Houston, Texas, USA.
6. *Trapping and cooling of  $\text{Sr}^+$  ions: strings and large clouds*, Poster - APS Division of Atomic, Molecular and Optical Physics Meeting 2010, Houston, Texas, USA.
7. *Strong quantum correlations in four wave mixing in  $^{85}\text{Rb}$  vapor : theory and experiments*, Talk , Photonics Europe 2010, Brussels, Belgium.
8. *Trapped  $\text{Sr}^+$  ions for quantum information*, Talk - IFRAF Conference of Quantum Physics with Atoms and Photons 2009 , Les Houches, France.
9. *Towards a Quantum memory in trapped ions*, Talk , Modern Applications of Trapped Ions 2008, Les Houches, France.
10. *Cold atoms experiment with Yb*, Poster, 2007, School of Physics : Quantum Optics , Les Houches, France.

## Scientific mediation

2007-2010 : Organizer of The French Science Festival - Realization of a workshop about fiber optics for high school students.

2009 : Translation in french of the Physics laureates poster for the Nobel committee.

2009 : Presentation of the Physics faculty of University Paris Diderot during the Student Fair in Paris.

2000-2009 : Organizer and manager in scientific summer camps for youth in France and abroad.

## Collective Responsibilities

2008-2010 : Elected member of the board of Physics Faculty at University Paris Diderot

2008-2010 : Elected member of the Scientific council at University Paris Diderot

2009 : Organizer of the annual graduate students meeting at Laboratoire MPQ

Since 2010 : Referee for Physical Review A and Physical Review Letters.

Since 2011 : Referee for Optics Express and Optics Communication.