

# Ludovic Arnaud

*Curriculum Vitæ, June 13, 2011*

**Born in:** June 23, 1982  
**Born at:** Foix (09), France  
**Nationality:** French

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## Professional data

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## Research experience and university education

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Since 2010 : Postdoctoral position at the [Université Libre de Bruxelles](#), Belgium, under the supervision of Prof. Nicolas Cerf ([QuIC](#)).

2006-2009 : PhD in Theoretical Physics at University Paul Sabatier, Toulouse, France. *Title : Statistics of quantum interference and random quantum circuits*, with supervisor Prof. Daniel Braun ([Laboratoire de Physique Théorique-CNRS](#)).

2004-2006 : Master in Physics of Matter at University Paul Sabatier, Toulouse, France.

### Short term research projects during this period :

- ◇ *Study of the distribution of interference in quantum algorithms using random matrix theory*, with Prof. Daniel Braun at [Laboratoire de Physique Théorique](#) (Toulouse), 6 months (2006).
- ◇ *Design of a laser diode for velocity measurement in a lithium interferometer*, with Dr. Jacques Vigué, in the Atomic Interferometry Group at the [LCAR](#) (Toulouse), 3 months (2005).

2001-2004 : BSc in Fundamental Physics at University Paul Sabatier, Toulouse, France.

2001 : Scientific baccalaureate in Pamiers (09), France.

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## Awards

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- ◇ Prize of the best talk given at the Journées de l'École doctorale Sciences de la Matière (doctoral school of physic, chemistry, and material sciences), presenting a summary of ongoing PhD thesis (1000 euros to fund research/travel expenses. May 2009).

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## Research interests

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- ◇ Quantum information and quantum computation.
  - ◇ Quantum interference and entanglement.
  - ◇ Links between quantum information and other fields of physics.
  - ◇ Foundation of quantum mechanics.
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## Publications

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- [1] [L. Arnaud](#) and D. Braun, *Distribution of Interference in Random Quantum Algorithms*, *Phys. Rev. A* **75**, 062314 (2007).
  - [2] [L. Arnaud](#) and D. Braun, *Efficiency of Producing Random Unitary Matrices with Quantum Circuits*, *Phys. Rev. A* **78**, 062329 (2008).
  - [3] [L. Arnaud](#) and D. Braun, *Distribution of Interference in the Presence of Decoherence*, *Phys. Rev. A* **80**, 062329 (2009).
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## Participation in conferences and schools

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- ◇ *Visiting Researcher at MIT*, Cambridge, MA (USA), Nov. 29 - Dec. 6, 2010.
- ◇ *Conference in Quantum Information*, Stockholm (Sweden), Oct. 4-7, 2010.
- ◇ *Photonicsbe doctoral school 2010*, Oostduinkerke (Belgium), Mar. 29-31, 2010.
- ◇ *Conference on Foundational Principles in Quantum Information (Foun.QI)*, Grenoble (France), Jul. 15-17, 2009.
- ◇ *Seminar at the Laboratoire de Physique Théorique*, Toulouse (France), Jan. 27, 2009.
- ◇ *GdR Quantum information and quantum communication*, Paris (France), Sep. 6-8, 2008. *Poster*.
- ◇ *Predocctoral school in Quantum Optics*, Les Houches (France), Sep. 10-21, 2007. *Poster*.
- ◇ *GdR Theoretical aspects of quantum information*, Aspet (France), Jun. 7-8, 2007. *Poster*.
- ◇ *Conference for the French Physical Society*, Grenoble (France), Jul. 9-13, 2007. *Poster*.

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## Teaching experience

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2007-2009 : Teaching assistant at the Physics department of [INSA of Toulouse](#).  
(equivalent to 128 hours of tutorials).

- ◇ *Electronics* tutorials for 1<sup>st</sup> year students.
- ◇ *Electronics* experimental physics labs for 1<sup>st</sup> year students.
- ◇ *Electromagnetism* and *Optics* experimental physics labs for 2<sup>nd</sup> year students.
- ◇ *Quantum Mechanics* and *Optics* experimental physics labs for 3<sup>rd</sup> year students.

2009-2010 : Teaching assistant at the Faculty of Applied Sciences of [ULB](#).  
(equivalent to 12 hours of tutorials).

- ◇ *Information Theory* tutorials for 3<sup>rd</sup> year students.

2010-2011 : Teaching assistant at the Faculty of Applied Sciences of [ULB](#).  
(equivalent to 48 hours of tutorials).

- ◇ *Information Theory* tutorials for 3<sup>rd</sup> year students.
- ◇ *Quantum Mechanics* tutorials for 3<sup>rd</sup> year students.