



Hanna Le Jeannic

31 years old, French
94 rue Jean Renaud Dandicolle, 33000 Bordeaux France
e-mail: hanna.lejeannic@gmail.com
OrCID : 0000-0002-5341-9046
h-index: 11 (Web of Science)

Senior Researcher (CNRS) in Quantum optics

Laureate of the 2020 CNRS national competition

Quantum Optics PhD at Pierre and Marie Curie University at Laboratoire Kastler Brossel

2013 - Master 2 "Optics, Matter and Plasmas"

2013 - Engineer ESPCI Paris/IOGS Physics Specialty (French Higher Engineering Schools M2-level)

2012 - X-ESPCI-Saint-Gobain Excellence Scholarship Award

2007-2009 - Higher School Preparatory Classes: Intensive two/three-year foundation lectures preparing for competitive entrance examination to highly selective institutions

WORK EXPERIENCE

- 2020- Present: Senior Researcher (CNRS - Permanent) at LP2N-**Bordeaux University**
- 2017-2020 - Post-Doctoral researcher at **Niels Bohr Institute (DK)**
« Non linearities of single quantum dots highly coupled to light », Group of Pr. Peter Lodahl.
5 Publications (Nature Physics, P.R.L, P.R. Research, NanoLetters, Nanophotonics)
- 2013-2016 - PhD at **Laboratoire Kastler Brossel (FRA)**
« Optical Hybrid Quantum information processing », Directed by Pr. Julien Laurat
11 publications (Nature Photon., 3 P.R.L., P.R.A, 2 Optica, Science Adv., Optics Letters, NJP, Rev. Sci. Instrum.), **3 oral presentations at International conferences, 7 posters** (one best poster award), 2 PhD schools ("Les Houches", "7th NTT-BRL School")
- 2011 - **Basic Research Laboratories in NTT Atsugi (JP)**
Publication in Scientific Reports, "NTT BRL Director Best Paper Award 2012"

TEACHING

Lecturer at Cargèse School of Quantum Information and Quantum Technology (June 2021)

Lecturer at Les Houches School on Quantum Processor and simulators (June 2022)

Assistant Teacher at UPMC: Lectures, Tutorials, and Labworks in professional B3-level, Oral Interrogations in General Physics B1-level

Oral Examiner in Chemistry in Preparatory Classes (2009-2010)

Tutor in mathematics, physics and chemistry (2006-2007, 2010, 2012)

SCIENTIFIC OUTREACH ACTIVITIES

« UniverCité » **Project:** Implementation of entertaining experiments to explain science and light to elementary school children

Science Days: Live experiments, Fundamental physics popularization, labs tours, towards general audience

Researchers in High School: Science popularization and live experiments in high school

MEMBERSHIPS AND COMMISSION OF TRUST

REVIEWING

Reviewer for, amongst other journal, Physical Review Letters, Physical Review Research, Optica, JOSA B, Optics Express

COMMITTEES:

Member of the scientific committee of the GDR-IQFA

Participant in the GPR Light

Member of local organizing committee of GDR MecaQ Colloquium 2022

Member of the scientific committee of the EOSAM 2022 Conference

OTHER: Organizer of the Monthly Lab's PhD seminars

Responsible of the lab communication

GRANTS

U-Bordeaux **SMR department's grant** (7k€) for the project: "DEtection du MOuvement d'un NANOtube avec une molécule unique "

CONFERENCES

Invited Talks

Conference : EOSAM2022 (Porto), CLEO2021 (Online), QuColiMa2021 Talks (Online)

Contributed Talks

GDR-IQFA 2021 (Lyon, France), CLEO2018 (San Jose USA), CEWQO 2017 (Lyngby, Denmark), QCMC 2016 (Singapore), CLEO 2015 (San Jose, USA -2 presentations including a post deadline), GDR-IQFA

Poster presentation

YQIS 2015 (Palaiseau, France - Best poster award), Photon Beyond Qubits 2014 & 2015 (Olomouc, Czech Republic), Young Physicist's days 2014 (Paris, France)

PhD Schools

7th NTT-BRL School (November 2015, Atsugi, Japan): Nano and Optics, Les Houches (April 2015, Les Houches, France): International School on Parametric Nonlinear Optics

SUPERVISION

During Post-Doctorate:

B3-level: 3-week project: Malte Brinch, Tai Skadegaard Thorsen, and Jeppe Detlefsen - *got maximal grade at exam*

M1-level: 2 month-project: Erik Belhage, 3 month-project: Arianne Brooks (stayed in the group for M2 internship) and Nicolas R.H. Pedersen (stayed in the group for M2 internship) - got maximal grade at exam

M2-level : 1 year internship, Signe Simonsen (2 publications),

1.5 year internship, Mathias Staunstrup (1 publication in process of writing)

PhD: supervision of Nils Valentin Hauff (1year only due to CNRS recruitment, 1 publication, submitted to Physical Review Research)

As a CR CNRS:

PhD: Current supervision of Mathias Staunstrup on CNRS project

M1 level: 6months internship Gary Croisé

B3-level: 1 month internship Alexandre Mersch

During Ph.D.: (in the lab) Adrien Cavallès (M2, 1year Ph.D) and Jérémy Raskop (M2)

PUBLICATIONS

5 Most relevant

-« **Dynamical Photon-Photon Interaction Mediated by a Quantum Emitter**»

H. Le Jeannic, A. Tiranov, J. Carolan, T. Ramos, Y. Wang, M. H. Appel, S. Scholz, A. D. Wieck, A. Ludwig, N. Rotenberg, L. Midolo, J. J. García-Ripoll, A. S. Sørensen, and P. Lodahl,

Nature Physics (2021)

- « **Experimental reconstruction of the few-photon nonlinear scattering matrix from a single quantum dot in a nanophotonic waveguide**»

H. Le Jeannic, T. Ramos, S. F. Simonsen, T. Pagnolato, Z. Liu, R. Schott, A. D. Wieck, A. Ludwig, N. Rotenberg, J. J. García-Ripoll et P. Lodahl,

Physical Review Letters **126** (2) 023603 (2021)

- « **Coherent nonlinear optics of quantum emitters in nanophotonic waveguides** »

P. Türschmann, **H. Le Jeannic**, S. F. Simonsen, H. R. Haakh, S. Götzinger, V. Sandoghar, P. Lodahl

Nanophotonics, **0126** (2019)

- « **Slowing quantum decoherence by squeezing in phase space** »

H. Le Jeannic, R. Filip, A. Cavallès, K. Huang, O. Morin, J. Laurat,

Physical Review Letters **120**, 1073603 (2018)

- « **Remote creation of hybrid entanglement between particle-like and wave-like optical qubits** »

O. Morin, K. Huang, J. Liu, **H. Le Jeannic**, C. Fabre, J. Laurat,

Nature Photonics **8**, 570-574 (2014)

Other Publications

- « **Chiral quantum optics in broken-symmetry and topological photonic crystal waveguides** »

N. Hauff, S. Hughes, H. Le Jeannic, P. Lodahl and N. Rotenberg, **Physical Rev. Research** **4**, 023082 (2022)

- « **Experimental Fock-state bunching capability of non-ideal single photon states** »

P. Zapletal, T. Darras, **H. Le Jeannic**, A. Cavallès, G. Guccione, J. Laurat and R. Filip

Optica, **8**, 5,743-748 (2021)

- « **Connecting heterogeneous quantum networks by hybrid entanglement swapping** »

G. Guccione, T. Darras, **H. Le Jeannic**, V. B. Verma, S. W. Nam, A. Cavallès and J. Laurat

Science Advances, vol. **6**, **122**, eaba4508, (2020)

- « **Engineering optical hybrid entanglement between discrete and continuous-variable states** »

K. Huang, **H. Le Jeannic**, J. Raskop, O. Morin, T. Darras, G. Guccione, A. Cavallès and J. Laurat

New Journal of Physics, **21**, 083033 (2019)

- « **Quantum Optics with Near Lifetime-limited Quantum-Dot transitions in a nanophotonic waveguide** »

H. Thyrrstrup, G. Kiršanskė, H. Le Jeannic, T. Pagnolato, L. Zhai, L. Raahauge, L. Midolo, N. Rotenberg, A. Javadi, R. Schott, A. D. Wieck, A. Ludwig, M. C.

Löbl, I. Söllner, R. J. Warburton, P. Lodahl

NanoLetters, **18** (2) pp 1801-1806 (2018)

- « **Demonstration of Einstein-Podolsky-Rosen Steering Using Hybrid Continuous- and Discrete-Variable Entanglement of Light**»

A. Cavallès, **H. Le Jeannic**, J. Raskop, G. Guccione, D. Markham, E. Diamanti, M. D. Shaw, V. B. Verma, S. W. Nam, and J. Laurat

Phys. Rev. Lett. **121**, 170403 (2018)

- « **Remote state preparation of continuous variable qubits via hybrid entanglement of light** »

H. Le Jeannic, A. Cavallès, J. Raskop, J. Laurat,

Optica **5** (8), 1012-1015 (2018)

- « **Close to unity quantum efficiency SNSPD for quantum state engineering in the near infrared** »

H. Le Jeannic, V.B. Verma, A. Cavallès, K. Huang, Y.-C. Jeong, F. Marsili, M.D. Shaw, S.W. Nam, O. Morin, J. Laurat,

Optics Letters **41**, 5341 (2016)

- « **Experimental quantum state engineering with time-separated heraldings from a continuous-wave light source: a temporal-mode analysis** »

K. Huang, **H. Le Jeannic**, V.B. Verma, M.D. Shaw, F. Marsili, S.W. Nam, E. Wu, H. Zeng, O. Morin, J. Laurat,

Physical Review A **93**, 013838 (2016)

- « **Optical synthesis of large-amplitude squeezed coherent-state superpositions with minimal resources** »

K. Huang, **H. Le Jeannic**, J. Ruaudel, V. B. Verma, M. D. Shaw, F. Marsili, S. W. Nam, E. Wu, H. Zeng, Y.-C. Jeong, R. Filip, O. Morin, J. Laurat,

Physical Review Letters **115**, 023602 (2015)

- « **Microcontroller-based locking in optics experiments** »

K. Huang, **H. Le Jeannic**, J. Ruaudel, O. Morin, J. Laurat,

Review of Scientific Instruments **85**, 123112 (2014)

- « **A monolithically integrated polarization entangled photon pair source on a silicon chip** »

N. Matsuda, **H. Le Jeannic**, H. Fukuda, T. Tsuchizawa, W. J. Munro, K. Shimizu, K. Yamada, Y. Tokura & H. Takesue,

Scientific Reports **2**, 817 (2012)