Dr. Pascal Del'Haye
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PROFESSIONAL EXPERIENCE

- W3 Temporary Professorship (Vertretungsprofessur) 2021-2022
  Friedrich-Alexander-University Erlangen-Nuremberg
  Erlangen, Germany
- Max Planck Research Group Leader since January 2020
  Max Planck Institute for the Science of Light
  Erlangen, Germany
- Senior and Principal Research Scientist, Strategic Research Fellow May 2015 – December 2019
  National Physical Laboratory
  Teddington, United Kingdom
- Postdoctoral researcher, Feodor Lynen fellow of the Humboldt Foundation August 2012 – August 2014
  National Institute of Standards and Technology
  Boulder CO, USA
- Postdoctoral researcher, Time and Frequency Division October 2011 – April 2015
  National Institute of Standards and Technology
  Boulder CO, USA
- Research associate June 2010 – July 2010
  Ecole Polytechnique Federale de Lausanne, Switzerland
- Research associate May 2007 – February 2011
  Max Planck Institute of Quantum Optics, Garching, Germany
- Student assistant in the Laserspectroscopy Division May 2006 – April 2007
  Max Planck Institute of Quantum Optics, Garching, Germany
- Teaching assistant for higher mathematics Oct. 2004 – April 2006
  RWTH Aachen, Lehrstuhl 1 für Mathematik, Prof. Wiegner, Aachen, Germany

EDUCATION

Doctoral degree in physics Apr. 2011
Thesis: *"Optical frequency comb generation in monolithic microresonators"*
(*summa cum laude*)
Ludwig-Maximilians-University Munich, Max Planck Institute of Quantum Optics, Germany
(PhD Advisors Prof Theodor Hänsch & Prof Tobias Kippenberg)

Diploma degree in physics Apr. 2007
Thesis: *"Cascaded parametric frequency conversion in monolithic microresonators"*
Ludwig-Maximilians-University Munich, Max Planck Institute of Quantum Optics, Germany

Undergraduate studies Sept. 2004
Rheinisch-Westfälische Technical University Aachen (RWTH), Germany

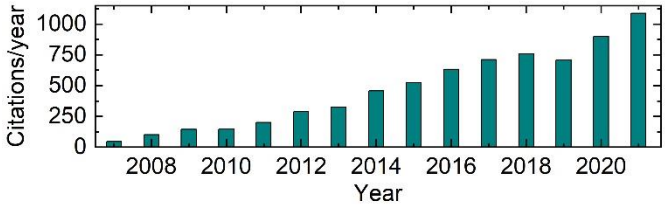
SELECTED PUBLICATIONS*

1. L. Del Bino, S. Silver, S. Stebbings and P. Del'Haye
   "Symmetry Breaking of Counter-Propagating Light in a Nonlinear Resonator",
   Scientific Reports 7, Article number: 43142 (Feb 2017) **[105 citations]**
2. P. Del'Haye, A. Schliesser, O. Arcizet, T. Wilken, R. Holzwarth and T.J. Kippenberg
   "Optical frequency comb generation from a monolithic microresonator",
   Nature 450, 1214-1217 (Dec. 2007) **[2111 citations]**

3. A. Schliesser, P. Del'Haye, N. Nooshi, K.J. Vahala and T.J. Kippenberg
"Radiation pressure cooling of a micromechanical oscillator using dynamical backaction",
Physical Review Letters 97, 243905 (Dec. 2006) **[721 citations]**
4. P. Del'Haye, K. Beha, S.B. Papp, S.A. Diddams
"Self-injection locking and phase-locked states in microresonator-based optical frequency combs",
Physical Review Letters 112, 043905 (Jan. 2014) **[141 citations]**
5. L. Del Bino, J.M. Silver, M.T.M. Woodley, S.L. Stebbings, X. Zhao, P. Del'Haye
"Microresonator isolators and circulators based on the intrinsic nonreciprocity of the Kerr effect",
Optica 5, 279-282 (Mar. 2018) **[98 citations]**
6. P. Del'Haye, O. Arcizet, M.L. Gorodetsky, R. Holzwarth and T.J. Kippenberg
"Frequency comb assisted diode laser spectroscopy for measurement of microcavity dispersion",
Nature Photonics 3, 529-533 (Aug. 2009) **[274 citations]**

*citation data based on Google Scholar (https://scholar.google.com/citations?user=PClYvzoAAAAJ, Jan 2022)
Total of **16 publications with more than 100 citations** (i100 index). H-index **28**.

	All	Since 2017
Citations	7459	4516
h-index	28	26
i10-index	40	38



CONFERENCES AND SEMINARS

More than **40 talks** at international conferences and workshops, including **24 invited talks**

TEACHING

- Experimental Physics 4, Atomic and Molecular Physics, FAU Erlangen-Nuremberg 2022
- Experimental Physics 4, Atomic and Molecular Physics, FAU Erlangen-Nuremberg 2021
- Modern Optics 1, FAU Erlangen-Nuremberg 2020/2021
- Guest Lecturer for Quantum Systems Engineering, Imperial College, London, UK 2017 – 2019
- Teaching at Winter School on Optics, International Center for Theoretical Physics, Trieste, Italy 2016
- Teaching assistant for higher mathematics I-IV 2004 – 2006
RWTH Aachen, Institute 1 for Mathematics, Prof. Wiegner

COLLABORATIONS

- Collaboration with Prof Gian-Luca Oppo (Univ Strathclyde) since 2017
Spontaneous symmetry breaking in microresonators
- Collaboration with Prof Ian Walmsley/Prof Michael Vanner (Univ Oxford/Imperial College) since 2016
Quantum dynamics in microresonators
- Collaboration with Alessia Pasquazi (Univ Sussex) external cavity microcombs 2016
- Collaboration with Prof. Her, University of Charlotte for development of dispersion compensated optical microresonators 2013
- Collaboration with SAMLAB in Neuchatel for tests of integrated nano positioning systems 2009 – 2010
- Collaboration with the European Southern Observatory for Microcomb-based spectrometer calibration tests 2008 – 2009
- Collaboration with NIST Boulder, USA for fabrication of high-Q fiber cavities 2007 – 2008

STIPENDS AND AWARDS

- **NPL Rayleigh Award** *for work on Symmetry Breaking of Counterpropagating Light* March 2019
- **EFTF Young Scientist Award** *Microresonator-based frequency combs* July 2017
- **Marie Curie Reintegration Grant** since March 2017
  CoLiDR "Collision of Light in dielectric Resonators"
- **European Physical Society QOED Thesis Prize for Fundamental Aspects** May 2013
  "Discovery and Development of Microresonator-Based Frequency Combs"
- **Feodor Lynen Fellowship of the Humboldt Foundation** for research on 2012-2014
  "Microcombs for Optical Clocks" (Humbold Host: Prof Jun Ye, JILA, Boulder, USA)
- Finalist of the **Theodore Maiman** Student Award, CLEO/IQEC, San Jose, USA May 2010
  Student prize granted by HRL Laboratories, LLC, IEEE Photonics Society, APS and OSA
  for the paper *"Octave-spanning tunable frequency combs on a chip"*
- **Helmholtz Prize for Metrology** June 2009
  For the *"Development of microresonator based frequency combs"*
- Finalist of the **Theodore Maiman** Student Award, CLEO/IQEC, Baltimore, USA June 2009
  Student prize granted by HRL Laboratories, LLC, IEEE Photonics Society, APS and OSA
  For the paper *"Precision spectroscopy with a scanning diode laser and measurement of microcavity dispersion"*
- **Best of Topicals Award**, Frontiers in Optics, San Jose USA Sept. 2007
  Awarded by the Optical Society of America for the conference submission
  "Optical frequency comb generation from a monolithic micro-resonator via the Kerr nonlinearity"

BOOKS/BOOK CHAPTER

- **"Optical frequency comb generation in monolithic microresonators"** 2011
  Dissertation, Publisher: Dr. Hut Verlag, ISBN 978-3868539318
- **"Optical frequency comb generation"** in "*Practical Applications of Microresonators in Optics and Photonics*", Editor Andrey Matsko, Taylor & Francis Group, ISBN 978-1420065787 2009

PATENTS/PATENT APPLICATIONS

- "*Polarization Alteration Device and Method*" 2021
  PCT/EP2021/051953
- "*Nonreciprocal Light Propagation Systems and Methods*" 2016
  WO/2017/221028, PCT/GB2017/051848
- "*Laser Machining and Mechanical Control of Optical Resonators*" 2012
  US Pat. No. US20140090425 A1
- "*Method and apparatus for frequency comb assisted laser spectroscopy*" 2010
  US Pat. App. No. 61/217,220, provisional patent application
- "*Method and apparatus for optical frequency comb generation using a monolithic micro-resonator*" 2007
  EU Pat. EP1988425 A1, US Patent 7982944, Japan Patent 2009-020492

RESEARCH FUNDING

- Max Planck - Fraunhofer Collaboration Project LAR3S — March 2022
- Max Planck Research Group funded by the Max Planck Society — Jan 2020
- Marie Curie Innovative Training Network "Microcombs" 812818 — Jan 2019
- ERC Starting Grant 756966 — April 2018
  CounterLIGHT "Symmetry Breaking and Interaction of Counterpropagating Light"
- Marie Curie Reintegration Grant 748519 — March 2017 – March 2018
  CoLiDR "Collision of Light in dielectric Resonators"
- Work Package Leader ESA AO 1-8334/15/NL/RA — June 2016 – May 2018
  "Development of Clock Control Unit (CCU)"
- Support from EPSRC for 2 studentships in CDT of Applied Photonics — since February 2016
- National Physical Laboratory Strategic Research Programme — May 2015- April 2018
  "*Microresonator-Based Optical Frequency Combs*"
- Feodor Lynen Fellowship of the Humboldt Foundation — Aug 2012- Aug 2014
  "*Microcombs for Optical Clocks*"

SUPERVISION AND MENTORING

- MPL, Germany: supervision of 2 postdocs, 4 PhD students, 2 Master Students — since 2020
- NPL, UK: supervision of 3 postdoc-level researchers, 5 PhD students, 2 guest researchers and several summer students — 2015-2020
- NIST, USA: mentoring and training for several postdoc and PhD students — 2011-2015
- MPQ, Germany: mentoring and training for PhD and diploma students — 2007-2010

INVOLVEMENT IN THE SCIENTIFIC COMMUNITY

- IEEE Photonics Conference committee member — 2020 – 2021
  "Optical Micro/Nano Resonators and Devices"
- CLEO Europe committee member "Precision Metrology and Frequency Combs" — 2015, 2019, 2021
- CLEO conference sub-committee member "Optical Metrology" — 2019 – 2021
- CLEO Pacific Rim 2020 conference sub-committee member "Silicon Photonics" — 2020
- Organizer for Special Symposium on "Nonreciprocal Photonics" @ CLEO 2019 — 2019
- Committee Member Integrated Photonics Research Conference (OSA) — 2015, 2016
  "Integrated High-precision Photonics"
- Reviewer for Science, Nature, Physical Review Letters, Nature Photonics and other Journals

LANGUAGE SKILLS

- German (mother tongue)
- English (fluent in speech, reading and writing)
- Chinese (basic skills in speech and reading)
- French (basic skills in speech, reading, and writing)