

Tim Hugo Taminiau

PERSONAL INFORMATION

NATIONALITY Netherlands
DATE OF BIRTH 26th January, 1981
E-MAIL T.H.Taminiau@TUDelft.nl
WEB PAGE <http://taminiau-lab.weebly.com/>
ADDRESS QuTech - Delft University of Technology
PO Box 5046
2600 GA Delft, the Netherlands

PROFESSIONAL EXPERIENCE

CURRENT Group leader (tenure track)
QuTech - Delft University of Technology
2011-2014 Postdoc at the Kavli Institute of Nanoscience
Delft University of Technology with Prof. Ronald Hanson
2010 Visiting researcher investigating magnetic transitions of lanthanides
Brown University with Prof. Rashid Zia
2009 Visiting researcher investigating silicon nanocrystal luminescence
California Institute of Technology with Prof. H. Atwater
2004 Trainee developing near-field optical lithography
Korea Institute of Machinery and Materials (KIMM), Daejeon, Korea

EDUCATION

2011 PhD - Supervisor Prof. Niek van Hulst
ICFO - Institut de Ciències Fotòniques, Barcelona, Spain
2005 Master of Science in applied physics, major in nano-optics
University of Twente, the Netherlands
2004 Minor in international management
University of Twente, the Netherlands

GRANTS

2014-PRESENT VENI, a 3-year grant to lead independent research
Dutch Organization for Scientific Research (NWO)
2012-2014 Marie Curie - Intra-European Fellowship (IEF)
Comprehensive 2-year fellowship awarded by the European Commission (REA)
2010 FPI Estancias Breves 2010 by the Spanish Ministry of Education
3-month research stay at Brown University
2009 FPI Estancias Breves 2009 by the Spanish Ministry of Education
3-month research stay at the California Institute of Technology (CALTECH)
2007-2011 Ayuda Predoctoral de Formaci3n de personal investigador (FPI)
Comprehensive 4-year PhD fellowship by the Spanish Ministry of Education

AWARDS

- 2015 Fresnel Prize, a bi-annual prize by the European Physical Society for fundamental contributions made by researchers under 35.
- 2012 Best PhD Thesis Award - ICFO Institut de Ciències Fotòniques
- 2012 Selected for the 62nd Lindau Nobel Laureate Meeting

PUBLICATIONS & PRESENTATIONS

SUMMARY 21 peer-reviewed publications with more than 2350 citations (Web of science), h-index: 19.
26 invited and keynote talks, 29 contributed talks, seminars and colloquia.

PUBLICATIONS

- ARTICLES** J. Cramer, N. Kalb, M. A. Rol, B. Hensen, M. S. Blok, M. Markham, D. J. Twitchen, R. Hanson and **T. H. Taminiau**.
Repeated quantum error correction on a continuously encoded qubit by real-time feedback
arXiv:1508.01388.
- B. Hensen, H. Bernien, A. E. Dreau, A. Reiserer, N. Kalb, M. S. Blok, J. Ruitenberg, R. F. L. Vermeulen, R. N. Schouten, C. Abellan, W. Amaya, V. Pruneri, M. W. Mitchell, M. Markham, D. J. Twitchen, D. Elkouss, S. Wehner, **T. H. Taminiau** and R. Hanson.
Loophole-free Bell inequality violation using electron spins separated by 1.3 kilometres
Nature 526, 682 (2015)
- M. S. Blok, N. Kalb, A. Reiserer, **T. H. Taminiau** and R. Hanson.
Towards quantum networks of single spins: analysis of a quantum memory with an optical interface in diamond
Faraday Discuss. 184, 173 (2015)
- W. Pfaff, B. J. Hensen, H. Bernien, S. B. van Dam, M. S. Blok, **T. H. Taminiau**, M. J. Tiggeleman, R. N. Schouten, M. Markham, D. J. Twitchen and R. Hanson.
Unconditional quantum teleportation between distant solid-state quantum bits
Science 345, 532 (2014)
- T. H. Taminiau**, J. Cramer, T. van der Sar, V. V. Dobrovitski and R. Hanson.
Universal control and error correction in multi-qubit spin registers in diamond
Nature Nanotech. 9, 171 (2014)
- H. Bernien, B. Hensen, W. Pfaff, G. Koolstra, M. S. Blok, L. Robledo, **T. H. Taminiau**, M. Markham, D. J. Twitchen, L. Childress and R. Hanson.
Heralded entanglement between solid-state qubits separated by 3 meters
Nature 497, 86 (2013)
- A. G. Curto, **T. H. Taminiau**, G. Volpe, M. P. Kreuzer, R. Quidant and N. F. van Hulst.
Multipolar Radiation of Quantum Emitters with Nanowire Optical Antennas
Nature Commun. 4:1750 (2013)
- W. Pfaff, **T. H. Taminiau**, L. Robledo, H. Bernien, M. L. Markham, D. J. Twitchen and R. Hanson.
Demonstration of entanglement-by-measurement of solid state qubits
Nature Phys. 9, 29 (2013)
- T. H. Taminiau**, J. J. T. Wagenaar, T. van der Sar, F. Jelezko, V. V. Dobrovitski and R. Hanson.

Detection and control of individual nuclear spins using a weakly coupled electron spin

Phys. Rev. Lett. 109, 137602 (2012)

T. H. Taminiau, S. Karaveli, N. F. van Hulst and R. Zia.

Quantifying the magnetic nature of light emission.

Nature Commun. 3:979 (2012)

T. van der Sar, Z. H. Wang, M. S. Blok, H. Bernien, **T. H. Taminiau**, D. M. Toyli, D. A. Lidar, D. D. Awschalom, R. Hanson, and V. V. Dobrovitski.

Decoherence-protected quantum gates for a hybrid solid-state spin register

Nature 484, 82 (2012)

T. H. Taminiau, F. D. Stefani, and N. F. van Hulst.

Optical Nanorod Antennas Modeled as Cavities for Dipolar Emitters: Evolution of Sub- and Super-Radiant Modes

Nano Lett. 11, 1020 (2011)

A. G. Curto, G. Volpe, **T. H. Taminiau**, M. P. Kreuzer, R. Quidant, and N. F. van Hulst.

Unidirectional Emission of a Quantum Dot Coupled to a Nanoantenna

Science 329, 930 (2010)

D. Brinks, F. D. Stefani, F. Kulzer, R. Hildner, **T. H. Taminiau**, Y. Avlasevich, K. Mullen, and N. F. van Hulst.

Visualizing and controlling vibrational wave packets of single molecules

Nature 465, 905 (2010)

T. H. Taminiau, F. D. Stefani, and N. F. van Hulst.

Single emitters coupled to plasmonic nano-antennas: angular emission and collection efficiency

New J. Phys. 10, 105005 (2008)

P. Ghenuche, S. Cherukulappurath, **T. H. Taminiau**, N. F. van Hulst and R. Quidant.

Spectroscopic Mode Mapping of Resonant Plasmon Nanoantennas

Phys. Rev. Lett. 101, 116805 (2008)

T. H. Taminiau, F. D. Stefani, and N. F. van Hulst.

Enhanced Directional Excitation and Emission of Single Emitters by a Nano-Optical Yagi-Uda Antenna

Optics Express 16, 10858 (2008)

T. H. Taminiau, F. D. Stefani, F. B. Segerink and N. F. van Hulst.

Optical Antennas Direct Single Molecule Emission

Nature Photon. 2, 234 (2008)

R. J. Moerland, **T. H. Taminiau**, L. Novotny, N. F. van Hulst and L. Kuipers.

Reversible Polarization Control of Single Photon Emission

Nano Lett. 8, 606 (2008)

T. H. Taminiau, R. J. Moerland, F. B. Segerink, L. Kuipers and N. F. van Hulst.

$\lambda/4$ Resonance of an Optical Monopole Antenna Probed by Single Molecule Fluorescence.

Nano Lett. 7, 28 (2007)

T. H. Taminiau, F. B. Segerink, R. J. Moerland, L. Kuipers and N. F. van Hulst.

Near-Field Driving of an Optical Monopole Antenna

J. Opt. A: Pure Appl. Opt. 9, S315 (2007)

T. H. Taminiau, F. B. Segerink, N. F. van Hulst.

A Monopole Antenna at Optical Frequencies: Single-Molecule Near-Field Measurements

IEEE Trans. Antennas Propag. 55, 3010 (2007)

BOOKS *Directionality, polarization and enhancement by optical antennas*
T. H. Taminiau, A. G. Curto and N. F. van Hulst.
Book chapter in *Optical Antennas* edited by: Mario Agio and Andrea Alù
Cambridge University Press (2013)

PRESENTATIONS

INVITED Aspen Conference on Advances in Quantum Algorithms and Computation
Aspen, US, March 2016.

SBDD XXI
Hasselt, Belgium, March 2016.

Physics@FOM
Veldhoven, Netherlands, January 2016.

PQE - Physics of quantum electronics
Snowbird, US, January 2016.

AMOLF general colloquium
Amsterdam, Netherlands, November 2015.

Third Conference on Quantum Thermodynamics
Porquerolles, France, October 2015.

META 2015
New York, US, August 2015.

International Frontiers in Quantum Materials and Devices
Cambridge, US, May 2015.

ICTP-ECAR Advanced Workshop
Quantum Networks with Spins in Diamond. Izmir, Turkey, September 2014.

Quantum Optics and Quantum Information 2014
Quantum Networks with Spins in Diamond. Beijing, China, July 2014.

CLEO 2014
Optical Quantum Networks with Spins in Diamond. San Jose, US, June 2014.

International conference on Quantum Optics 2014
Optical Quantum Networks with Spins in Diamond.
Obergurgl, Austria, February 2014.

ICONO/LAT 2013
Long-distance quantum networks built from spin registers in diamond.
Moscow, Russia, June 2013.

Workshop on Diamond - Spintronics, Photonics, Bio-applications
Quantum Registers and Networks with Spins in Diamond.
Hong Kong, April 2013.

54th ENC Conference
*Polarization, Control and Quantum Entanglement of Individual Nuclear Spins
in Diamond*. Pacific Grove, US, April 2013.

QDiamond12
Entanglement of quantum registers in diamond.
Bonamanzi, South Africa, December 2012.

Frontiers in Optics 2012
Control of hybrid quantum registers in diamond. Rochester, US, October 2012.

SPP5 - 5th International Conference on Surface Plasmon Photonics
Optical antennas for single quantum emitters. Busan, Korea, May 2011.

Villa Conference on Metamataterials 2011
Quantifying the magnetic nature of light emission. Las Vegas, US, April 2011.

2nd International workshop on fundamentals of light matter interaction
Optical antennas for single emitters. Porto de Galinhas, Brazil, February 2011.

SPIE Optics and Photonics
From antenna theory to plasmonics: 1D resonator theory for optical antennas and dipolar emitters. San Diego, US, August 2009.

SPIE Optics and Photonics
Enhanced rates and high directivity for single emitters with optical antennas. San Diego, US, August 2009.

MRS Spring Meeting
Optical antennas for single molecules. San Francisco, US, April 2009.

NanoMeta2009
Optical Antennas Direct Single Molecule Emission. Seefeld Tirol, Austria, January 2009.

NFO10 - Near Field Optics 10
Optical antennas for single molecules. Buenos Aires, Argentina, September 2008.

EOS Topical Meeting on Molecular Plasmonic Devices
Probing the local field of a resonant optical nano antenna by single molecule detection. Engelberg, Switzerland, April 2006.

CONTRIBUTED TALKS,
 SEMINARS AND SMALL
 COLLOQUIA

QIPC 2015. Leeds, UK, September 2015.

Yale. New Haven, US, May 2015.

Harvard. Cambridge, US, May 2015.

APS March Meeting 2015. San Jose, US, March 2015.

APS March Meeting 2014. Denver, US, March 2014.

Universidad de los Andes. Bogota, Colombia, November 2013.

NNV AMO. Lunteren, Netherlands, October 2013.

Institute for Quantum Computing (IQC), Colloquium. Waterloo, Canada, August 2013.

Conference on Quantum Information and Quantum Control V. Toronto, Canada, August 2013.

APS March Meeting 2013. Baltimore, US, March 2013.

University of Vienna, seminar. Vienna, Austria, January 2013.

DIAMANT meeting. Vienna, Austria, January 2013.

Physics@FOM. Veldhoven, Netherlands, January 2013.

APS March Meeting 2012. Boston, US, March 2012.

S³-Nano kick-off meeting. Munich, Germany, February 2012.

MRS fall meeting. Boston, US, November 2010.

NFO11 - 11th International Conference on Near-Field Optics, Nanophotonics and Related Techniques. Beijing, China, September 2010.

ETH Zurich, Colloquium. Zurich, Switzerland, July 2010.

Brown University, Colloquium. Providence, US, May 2010.

The Institute of Optics, Colloquium. Rochester, US, May 2010.

EU Concertation Meeting. Florence, Italy, February 2009.

Design Challenges workshop on Optical Simulations with CST MICROWAVE STUDIO. Enschede, the Netherlands, June 2008.

New Frontiers in Micro and Nano Photonics. Florence, Italy, April 2008.

Conferencia Española de Nanofotónica. Tarragona, Spain, April 2008.

SPP3 - Surface Plasmon Photonics 3. Dijon, France, June 2007.

ASPRINT - NoE Advanced Scanning Probes Research concluding meeting. Nijmegen, the Netherlands, May 2007.

Workshop SPM, University of Zaragoza. Zaragoza, Spain, December 2006.

XXII Trobades Científiques de la Mediterrània: Nanociència i Nanotecnologia. Menorca, Spain, October 2006.

ASPRINT - Workshop on Advanced Scanning Probes for Innovative Nanoscience and Technology. Barcelona, Spain, May 2006.

POPULAR
PRESENTATIONS
AND ARTICLES

Pioneers of Physics
Nijmegen, Netherlands, May 2016

Infosecurity 2015
Quantum computing: big troubles and opportunities for cybersecurity Utrecht, Netherlands, November 2015

“Weird” science lectures at the Mediamatic
(Quantum) teleportation. Amsterdam, Netherlands, October 2014

Physics Symposium 2014, University of Groningen
The quantum computer. Groningen, Netherlands, May 2014

T. H. Taminau and R. Hanson
Door meten tot quantumverstremming (in dutch)
Nederlands tijdschrift voor natuurkunde, 79, 430 (2013)

Physics Symposium 2013, Eindhoven University
The quantum computer. Eindhoven, Netherlands, December 2013