Niek F. van Hulst

ICREA Research Professor
ICFO – The Institute of Photonic Sciences,
BIST – The Barcelona Institute of Science and Technology,
Av. Carl Friedrich Gauss 3, 08860 Castelldefels – Barcelona

PROFESSIONAL APPOINTMENTS:

Since Oct 2005	Senior group leader, **ICFO** – The Institute of Photonic Sciences, Castelldefels – Barcelona; **BIST** - the Barcelona Institute of Science and Technology
Since Oct 2005	**ICREA** research professor, Barcelona
Since Sep 2018	Chair NanoFabrication Lab, **ICFO** – The Institute of Photonic Sciences
2015 – 2020	Head Academic Programs, **ICFO** – The Institute of Photonic Sciences
1997 – 2005	Full Professor, Applied Optics, ***MESA***$^{+}$ Inst. Nano-Technology, Enschede, NL
1990 – 1997	Assistant Professor, Applied Physics, University of Twente, NL
1986 – 1990	Researcher, Opto-Electronics, University of Twente, NL

EDUCATION:

June 1986	Ph.D. in (Molecule & Laser) Physics, University of Nijmegen, NL
June 1981	M.Sc. in Experimental Physics, University of Nijmegen, NL
June 1978	Undergraduate Astronomy & Physics, University of Nijmegen

ACADEMIC HONOURS, ERC, FELLOWSHIPS, SOCIETIES:

2021	*ERC* Advanced Grant: *FastTrack*, Photons and Electrons on the Move
2017	EPS Prize for Fundamental Aspects of Quantum Electronics and Optics
2015	*ERC* Advanced Grant: *LightNet*, Tracking the Coherent Light Path in Photosynthetic Networks, plus associated ERC-PoC grant in 2016
2011	Fellow of Optica/OSA - Optical Society of America
2010	Annual science prize of the town of Barcelona: *Premi Ciutat* 2010
2009	*ERC* Advanced Grant: *NanoAntennas*, Nano-Optical Antennas for Tunable Single Photon Super-Emitters
2003	European Science Award of the *Körber* foundation, Hamburg, Germany
1997	*Shell* stimulation award for achievements in near field optics, Amsterdam
Society memberships	Optica - Optical Society of America; EPS - European Physical Society; EOS - European Optical Society; APS – American Physical Society; NNV - Dutch Physical Society, SCF - Catalan Physical Society

SHORT BIOGRAPH:

Niek van Hulst studied Astronomy and Physics, and obtained his PhD (1986) in Molecular & Laser-Physics at the University of Nijmegen (the Netherlands), on microwave-laser double resonance molecular-beam spectroscopy of molecules seen in interstellar clouds. After research periods on non-linear optics of organic materials, integrated optics, atomic force and near-field optical microscopy, in 1997 he became full Professor in Applied Optics at the MESA+ Institute for NanoTechnology, University of Twente (the Netherlands) with focus on nanophotonics, optical scanning probe technology and single molecule detection.

In 2005, attracted by the Catalan quality-based science policy, he started as ICREA Research Professor and senior group leader at ICFO - the Institute of Photonic Sciences, since 2015 within The Barcelona Institute of Science & Technology. At ICFO, his interest is to control light interaction at the nanometer scale. His group specializes on optical nanoantennas and coherent control schemes to command light on the "femto-nano" scale. He studies individual molecules, QDots, 2D-defects and single proteins, in strong interaction with nanoantenna-cavities and sub-10-fs pulses; controlling excitation-emission rates, direction, single photon character. The latest ERC project is focused on the quantum nature of long-lived coherences in the photon energy transport in single light-harvesting complexes and membranes.

Niek van Hulst is author of 275 refereed papers and 33 proceedings (WoS), attracting ~21000 citations. His papers receive on average 67 Citations/paper. According to the Web of Science, his *h-index* is 72, (83 on Scholar).

Recipient of the 1997 Shell stimulation award, the 2003 European Science Award of the Körber Foundation; 2010 City of Barcelona Prize; OSA-fellow; three ERC Advanced Investigator Grants, in 2010, in 2015 and in 2021; ERC Proof of Concept in 2016; EPS Prize for Fundamental Aspects of Quantum Electronics and Optics in 2017.

Niek van Hulst coordinates the Spanish CONSOLIDER network *NanoLight.es*, internationally known for the biennial *Nanolight* meetings in Benasque. He did head the *Academic Program* at ICFO, with specific focus on the ICFO-PhD-program, follow-up and hiring policy. He also heads the ICFO *NanoFabrication Laboratory,* going through a move to the new ICFO-PMB building, which was completed in 2023. Finally, he represents ICFO in the Research Working Group to shape *BIST - the Barcelona Institute of Science and Technology*.

RECENT SYNERGISTIC ACTIVITIES:

- Organizer Biennial conference-series *NanoLight*, Benasque, March 2012 - 2024.
- CLEO/Europe 2019, 2021, 2023: Chair/member symposium EG – Light-matter Nano-scale.
- ERC-Consolidator Grants, PE4 - Panel member, 2021, 2023.
- ERC referee StG, CoG, AdG, SyG: PE3, PE4, PE7.
- OIST - Okinawa Institute of S&T, panel member, scientific evaluation, July 2021.
- European Optical Soc. AM, member program committee TOM 5, 2018, 2020.
- Barcelona Institute of Science and Technology: Evaluation panel Ignite calls 2019 – present.
- TU/Eindhoven, Netherlands, member International Science Review Panel, Dec 2018
- Coordinator of Spanish research Network *"NanoLight"*, (2015-2023, 9 groups).
- Permanent member of Committee *Plasmonics-NanoPhotonics* Symp. at *SPIE* San Diego.
- Organization and steering of Int. Conferences on Near Field Optics (NFO series).
- Organizer and Chair of *OSA Siegman International School on Lasers* – ICFO, 2016
- Coordinator/teacher of annual course on "NanoPhotonics" in Master Photonics-BCN.

RESEARCH TOPICS AND HIGHLIGHTS:

The central goal of the vanHulst group at ICFO is to control light interaction at the nanometer scale. To this end my group specializes on nano-antennas which confine light to far sub-wavelength hot spots, and on broadband coherent control schemes to command light pulses at few fs timescale. By means of the optical antennas we address locally individual molecules, quantum dots and proteins, enhancing their excitation and managing emission rate, spectra, polarization and direction of single photon emission. By coherent control we explore the fs dynamics of individual molecules, nanoparticles and plasmonic hot spots. Recently we focus particularly on long-lived coherences in single light-harvesting antenna complexes at native conditions, to unravel nature's architecture to achieve the remarkably high efficiency and robustness of energy conversion in such natural molecular antennas and membranes.

Research topics:

- Optical NanoAntennas for emission control, coupling control, nano-focusing and nano-imaging of molecules, proteins, 2D-defects by nano-antenna probes. Concluded 2021.
- Ultrafast at the nanoscale: Coherent control of molecular dynamics, light-harvesting complexes by phase-controlled excitation with few-fs broad band pulses.
- Coherent imaging: Ultrasensitive microscopy and detection beyond fluorescence: interferometric scattering, Fourier imaging, stimulated emission, pump-dump approaches.
- Nanoscale energy transfer: tracking ultrafast photon diffusion and charge separaton on the nanoscale, in photosynthetic membranes, OPVs and 2D materials. Current ERC-2021 grant.

Highlights in recent years:

- Spatio-temporal Mapping of Exciton Diffusion & SSA, *J. Phys. Chem. Lett.* **14**, 1999 (2023).
- What's special about Y6 in organic solar cells ? *Materials Horizons* **10**, 1825 (2023)
- Ultrafast Diffusion in Wide-Field Holographic Microscopy, *Ultrafast Science* **3**, 0032 (2023).
- Ultrafast Holographic Transient Microscopy, *Nano Lett.* **21** (4), 1666-1671 (2021).
- Giant and tuneable thermal diffusivity of a Dirac fluid at RT, *Nature NanoTechn.* **16**, 1195 (2021).
- SERS Holography, *Nature NanoTechn.* **15** (12) 1005-1011 (2020).
- 3D tracking of EVs by Fluorescence Holography. *Science Advances*. **6**, eabc2508 (2020).
- Ultrafast Stimulated Emission Microscopy of Single Nanocrystals, *Science.* **366**, 1240 (2019).
- Tracking of nanoscale fs-ps hot-electron diffusion, *Science Advances* **5**: eaav8965 (2019).
- Ultrafast transient absorption spectroscopy of a single molecule, *Nature Phot.* **12**, 46 (2018).
- Mapping coupling strength of single emitter throughout nanocavity, *NanoLett.* **18**, 2538 (2018).
- Label-free detection of single proteins down to 15 kDa mass, *NanoLett.* **17**, 1277 (2017).
- Generation of photovoltage in graphene on a fs timescale, *Nature NanoTechn.* **10**, 437 (2015)
- Non-classical emission of LH complexes at room temp. *Nature Commun.* **5**: 4236 (2014).
- Persistent quantum coherence in single light-harvesting complexes (LH2) at room temperature, *Science* **340**, 1448-1451 (2013); highlighted in BBC-news, NBC-news.
- "Antenna-in-box" platform for 1000 times enhanced single-molecule analysis at micromolar concentrations, *Nature Nanotechn.* **8**, 512-516 (2013).
- Generation of multipolar emission (quadrupolar, octupolar) of a single quantum dot by resonant coupling to an optical nanoantenna, *Nature Commun.* **4**: 1750 (2013).
- fs switching of nanoscale hotspots of a plasmonic antennas by coherent spectral phase control, *PNAS* **110**, 18386–18390 (2013); highlighted in *PNAS First Look*.
- Coherence at room temperature: Rabi-oscillations and phase control of a single molecule, *Nature Physics* **7**, 172 (2011).

RESEARCH GRANTS:

Coordination of programs

The research is based on various grants (~37) from several EU projects (**3** ERC-Adv.Grants, PoC, RTN, ITN, NoE, Strep, NEST, Pathfinder, QuantERA), Spanish Ministries MICINN/ MINECO/ MCIU (Consolider, Plan-Nacional, FPI), Catalan AGAUR, Dutch FOM, STW, NWO, KNAW, NanoNed, and the German VW-foundation. Currently coordinator of the Spanish national NanoPhotonics research (Network of Excellence "NanoLight.es"), partner in EU projects ITN-MUSIQ, COST program Quantum-Nano-Optics.

Competitive grants in recent years

1. **ERC**-AdvGr (2022-2027) 101054846 *FastTrack*: on transport in (dis)ordered LH networks.
2. EU-Pathfinder, 101047137 TROPHY - Ultrafast Holographic FT-IR Microscopy
3. Quant-ERA-FET, ExTRaQT, Exp & Theory of Resources in Coherent Quantum Technologies.
4. Spanish MCINN, TED2021-129241B-I00 *SpecFlow - MD-ES in energy materials,* 2022-2024.
5. Spanish MCINN, PID2021-123814OB-I00 *Light2Charge - Tracking fs/ps ET on the nanoscale,* 2022-2025
6. EU H2020-MSCA-ITN-2018 (No.812992): "*MUSIQ: Multiphoton Microscopy and Ultrafast Spectroscopy: Imaging meets Quantum",* 502 k€, 2019-2023.
7. MCIU, PGC2018-096875-B-I00 *"GROC - Giant Res. Optical Coupling"*, 242 k€, 2019-2021.
8. MCIU-AEI; RED2018-102752-T - Nanolight.es, 15 k€, 2019 – 2021.
9. MINECO- EQC2018-004079-P, Equipment, Hires AFM, 171 k€, 2019-2021.
10. **ERC** Proof of Concept, PoC-2016-755196, "IBIS - *Platform for label-free quantitative detection of single proteins and extracellular vesicles,"*, 150 k€, 2017-2019.
11. BIST-Ignite-program 2017, two projects: Q-SPET and 2D-NanoHeat.
12. AGAUR 2017 SGR 1369, basic support recognized Group, 43.9k€, 2017-2020.
13. MINECO; FIS2016-81740-REDC: NanoLight.es, 41.5 k€, 2017 – 2019.
14. **ERC** Advanced Grant, 670949, "*LightNet - Tracking the Coherent Light Path in Photosynthetic Networks*", 2.8 M€, 2016-2020.
15. MINECO; FIS2015-72409-EXP, "*CL-Micro: imaging by stim. emission",* 70 k€, 2017-2019.
16. MINECO; PN FIS2015-69258-P, "*FemtoNano - Femtosecond Quantum Transport in Nanoscale Natural Photonic Networks"*, 127 k€, 2016 – 2018.
17. EU FP7-ICT-2011-7 "*Advanced photonic antenna tools for biosensing and cellular nanoimaging"* (NANO-VISTA), 459 k€, 2011 – 2016.
18. MINECO; FIS2014-55563-REDC: NanoLight.es, 39 k€, 2015 – 2017.
19. MINECO; PN FIS2012-35527, "*Quantum Coherence for Energy Eff."*, 204 k€, 2013 – 2015.
20. EU (Intra-European Fellowships IEF), "*Nanoscale detection of entangled surface plasmon polaritons"* (PLASMENTA), 110 k€, 2011 – 2012.
21. **ERC** Advanced Grant, 247330, "*Nano-Optical Antennas for Tuneable Single Photon Super-Emitters"*, 2.49 M€, 2010-2015.
22. MICINN: PN FIS2009-08203, "*Nano-Antennas"*, 350 k€, 2010-2012.
23. ESF research program "*New Approaches to Biochemical Sensing with Plasmonic Nanobiophotonics"* (PLASMON-BIONANOSENSE), 457 k€, 2010-2014.
24. MICINN: CONSOLIDER – Ingenio 2010: CDS2007-046, "*NanoLight.es - Light control on the NanoScale"*, Niek van Hulst (Coordinator), program with 10 groups, 6 M€, 2008-2013.
25. EU-FP7-NoE Photonics4Life, 4 ICFO groups, 70 k€ + internal calls, 2008-2012.
26. European Science Prize, Körber foundation, Hamburg, Germany, "*Light-driven molecular walkers"*, 750 kEuro (150 kEuro for group), 2003-2007.

Earlier grants when working at ICFO -Barcelona and in the Netherlands.

ADVISING, TEACHING, SCHOOL FORMATION

Chair NanoFabrication Laboratory (NFL) ICFO

As chair NFL, Niek van Hulst is overseeing daily operation of a clean room with over 70 users, the investment in specialized equipment and planning of the relocation to new ICFO building.

Head Academic Programs ICFO

As head Academic Programs (2015-2020), Niek van Hulst was responsible for the ICFO PhD program: hiring process, evaluation, follow-up, training courses, communication skills, schools.

PhD and master students

23 PhD students defended successfully their PhD research under supervision of Niek van Hulst, while 5 PhDs are currently in his group. He supervised around 95 MSc students.

Niek van Hulst is coordinator and teacher of the course on "NanoPhotonics" which is part of the Master Photonics-BCN between ICFO, UPC, UB and UAB, and also integrated in the Erasmus mundus PhD and MSc program on BioNanoPhotonics.

School formation: spin-out to academic positions

- *Kobus Kuipers*, previous staff member; group leader AMOLF-Amsterdam; director Nano-Photonics Center Amsterdam; head Dept. Quantum Nanoscience, TU Delft, NL
- *Jacob Hoogenboom*, previous postdoc, now Ass. Prof. at TUDelft, NL
- *Fernando Stefani*, previous postdoc, now group leader, CIBION - Center for Bionanoscience Research, CONICET, Buenos Aires, Argentina.
- *Nikodem Tomczak*, previous postdoc, now PI and group leader Singapore University.
- *Renaud Vallée*, previous postdoc, now PI and professor at University of Bordeaux, F
- *Jordi Hernando*, previous postdoc, now group leader at UABarcelona, E
- *Henkjan Gersen*, previous PhD student, now Senior Lecturer, Univ.Bristol, UK
- *Florian Kulzer*, previous postdoc, now "rechercheur", Institut Lumière Matière, University Lyon, F
- *Richard Hildner,* previous postdoc, now Full Professor at Groningen University, Netherlands.
- *Riccardo Sapienza*, previous postdoc, now Reader in Physics at Imperial College London, UK
- *Tim Taminiau*, previous PhD-student, now PI at QuTech, TUDelft, the Netherlands
- *Jana Nieder,* previous postdoc, now PI, ultra-fast laser lab, INL, Braga, Portugal.
- *Daan Brinks*, previous PhD student, now Ass. Prof. at Dept. Physics, TUDelft, Netherlands.
- *Alberto Curto*, previous PhD student, now Assistant Prof. at TUEindhoven, the Netherlands
- *Emilie Wientjes*, previous postdoc, now Ass.Prof. (VIDI) at Wageningen University, NL
- *Lukasz Piatkowski*, previous postdoc, now Ass.Prof. Poznań Univ. of Technology, Poland
- *Klaas-jan Tielrooij,* previous postdoc, now Group Leader at UT/Eindhoven, Netherlands.

Moreover, several leading researchers and managers at Philips, Shell, Bruker, OCE, ASML, Zeiss have their roots in the research group of Niek van Hulst:

- *Ton Ruiter*, Manager, AFM systems, Bruker Nano Surfaces USA; previously Veeco USA
- *Marco Moers*, Senior System Engineer at FEI Company; Systems Engineer ASML.
- *Oscar Noordman*, Project manager, ASML Netherlands B.V.
- *Joost-Anne Veerman*, Head printing process at Mutracx; R&D Océ Technologies.
- *Wouter Rensen*, Project manager, IP portfolio coordinator EFFECT Photonics, Netherlands.
- *Marcello Balistreri*, CEO of LumitexT; Program Manager Lumileds Philips Research.
- *Erik van Dijk*, CEO EasyScan B.V., previously X-ray Imaging at Philips Healthcare.
- *Marjolein Mutsaers-Koopman*, Asset lead MSPO at Shell Global Solutions, Netherlands.
- *Martin Kuttge*, Product Manager at Carl Zeiss Microscopy GmbH, München, Germany.
- *Lars Neumann,* Product Manager 3D Printing / Digital Manufacturing, HP Barcelona.
- *Marta Castro Lopez*, Senior Research Engineer at Huawei Technologies, Munich, Germany
- *Pablo M de Roque*, Manager at KPMG Data Analytics & AI, Barcelona, Spain
- *Anshuman Singh*, Raytheon BBN Tech, Cambridge, Massachusetts, USA
- *Esther Gellings*, Strategy Associate, Program Office, Achmea, NL
- *Alex Duarte*, Design Engineer, Advanced Algorithm & Image Processing, ASML Netherlands B.V.
- *Pawel Wozniak*, Optical Design Engineer, Carl Zeiss Microscopy GmbH, Oberkochen, Germany.

SCIENTIFIC COLLABORATIONS:

Local at ICFO

- Frank Koppens, Nicoletta Liguori, Valerio Pruneri, Javier Garcia de Abajo, Maria Garcia-Parajo, Gerasimos Konstantatos, ICFO, Castelldefels, Barcelona

International

- Klaas-Jan Tielrooij, Inst. Català de Nanociència i Nanotecnologia (ICN2): 2D-materials
- Giulio Cerullo, Politecnico di Milano, Italy: 2D-spectroscopy, ultrafast holography.
- Neil Hunter, University of Sheffield, UK: purified and reconstituted LH membranes/rods
- Elisabetta Collini, UniPadova, Italy: PEC detected low rep-rate 2D-ES reference
- Martin Plenio, Quantum Sciences, University Ulm, Germany: modelling coherences LH-systems
- Ramón Alvarez-Puebla, Universitat Rovira i Virgili, Tarragona: gold nanowires, Raman emitters
- Costanza Toninelli, CNR-INO, LENS, Florence, Italy: DBT single photon emitters
- Roberta Croce, VU Amsterdam, Netherlands: PSI, PSII, thylakoid membranes
- Pau Gorostiza, IBEC-Barcelona: photo-electro-chemical molecular detection
- Andreas Jakobsson, Tönu Pullerits, Lund Univ., Sweden: compressed sensing for 2D spectra.
- Richard Cogdell, Institute Molecular, Cell, Systems Biology, University of Glasgow, UK
- Juergen Brugger, Institute of Microengineering, EPFL-Lausanne, Switzerland: antenna arrays
- Robert Blankenship, Univ. Berkeley, CA, USA: purified FMO complexes
- Jerôme Wenger, Nicolas Bonod, Hervé Rigneault & Sophie Brasselet, Institut Fresnel, University of Marseille, France: FRET-antenna systems and NLO interactions
- Iwan Moreels, IIT, Genova, Italy & Univ.Ghendt, Belgium: rod-in-rod quantum dots
- Lukas Novotny, NanoPhotonics, ETH-Zurich, Switzerland: nanoantennas and probes
- Stefan Maier, Monash University, Melbourne, Australia, GaP nanoresonators
- Rashid Zia, Dept. Elec. Eng., Brown University, Providence, USA: magnetic light emission
- Richard Hildner & Jürgen Köhler, University of Bayreuth, Germany: LH-spectroscopy
- Mathieu Mivelle, Sorbonne Université, CNRS, Institut des NanoSciences de Paris, France
- Riccardo Sapienza, Imperial College London, UK: complex photonic materials
- Lukasz Piatkowski, ICHF, Warsaw, Poland: ultrafast SM detection & porphycines
- Henkjan Gersen, Wills Physics Lab, Univ. Bristol, UK: interferometric nanoparticle detection
- Renaud Vallee, Research Centre Paul Pascal, Bordeaux, France: metal-polymer nanoshells
- Jacob Hoogenboom, University of Delft, the Netherlands: combined photonic/electron imaging
- Peter Fendel, Menlo Systems GmbH, Martinsried, Germany: broad-band laser systems
- Dmitry Pestov, Igor Pastirk, Marcos Dantus, BioPhotonics Solutions, Inc., USA: MIIPS
- Klaus Müllen, Yuri Avlasevich, MPI Polymer Res., Mainz, Germany: synthetic chromophores
- Reuven Gordon, University of Victoria, British Columbia, Canada: supertransmissive nanoholes
- Luis Martin-Moreno, CSIC, University of Zaragoza, Zaragoza: NanoLight workshop organization

CITATIONS AND IMPACT:

Author of 275 refereed papers and 33 proceedings (WOS), amongst which *Nature, Science*, *Phys.Rev.Lett.*, *PNAS, Nature Photon., Nature Physics, Nature NanoTechn., Sci.Adv., Nature Comm., NanoLetters, Appl.Phys.Lett., Adv Mat., Angew.Chem., JACS*, *JCP, JPC, LSA,* etc.

~21000 Citations; Average 67 Citations/paper; h-index: 72 (WoS); 83 (Scholar)

Top-10 cited papers (WoS January 2024):

- Novotny, Lukas & van Hulst, Niek, Antennas for light, *Nature Photonics* **5**, 83 (2011). 2412 cites
- Curto AG, Volpe G, Taminiau TH, Kreuzer MP, Quidant R, van Hulst NF, Unidirectional Emission of a Quantum Dot Coupled to a Nanoantenna, *Science* **329**, 930 (2010). 1299
- Taminiau, T. H.; Stefani, F. D.; Segerink, F. B.; van Hulst, NF, Optical antennas direct single-molecule emission, *Nature Photonics* **2**, 234 (2008). 663
- Koerkamp, KJK; Enoch, S; Segerink, FB; van Hulst, NF; *et al.*, Strong influence of hole shape on extraordinary transmission through periodic arrays of sub-wavelength holes, *Physical Review Letters* **92,** 183901 (2004). 654
- Putman, CAJ; van der Werf, KO; de Grooth, BG; van Hulst, NF, Tapping Mode Atomic-Force Microscopy in Liquid, *Applied Physics Letters* **64**, 2454 (1994). 509
- Gersen, H; Karle, TJ; Engelen, RJP; et al., Real-space observation of ultraslow light in photonic crystal waveguides, *Physical Review Letters* **94**, 073903 (2005). 493
- Taminiau TH; Moerland RJ; Segerink FB; Kuipers L; van Hulst NF, $\lambda/4$ Resonance of an optical monopole antenna probed by single molecule fluorescence, *Nano Letters* **7**, 28 (2007). 367
- Ghenuche P., Cherukulappurath S., Taminiau TH, van Hulst NF, Quidant R, Spectroscopic mode mapping of resonant plasmon nano-antennas. *Phys. Rev. Lett.* **101**, 116805 (2008). 353
- Punj, D; Mivelle, M; Moparthi, SB; van Zanten, TS; Rigneault, H; van Hulst, NF; *et al*., A plasmonic '*antenna-in-box*' platform for enhanced single-molecule analysis at micromolar concentrations, *Nature NanoTechnology* **8***, 512-516* (2013). 313
- van der Molen, KL; Klein Koerkamp, KJ; Enoch, S; *et al.*, Role of shape and localized resonances in extraordinary transmission through periodic arrays of subwavelength holes: Experiment and theory, *Physical Review B* **72**, 045421 (2005). 291
- Tielrooij KJ; Piatkowski L; Massicotte M; Woessner A; Lee Y; Lau C; Jarillo-Herrero P; van Hulst NF; Koppens FHL, Generation of photovoltage in graphene on fs timescale through efficient carrier heating, *Nature NanoTechnology* **10**, 437-443 (2015) 279
- Hildner R; Brinks D; Nieder JB; Cogdell RJ; van Hulst NF, Quantum Coherent Energy Transfer over Varying Pathways in Single Light-Harvesting Complexes, *Science* **340**, 1448-1451 (2013) 276
- Taminiau TH; Stefani FD; van Hulst NF, Enhanced directional excitation and emission of single emitters by a nano-optical Yagi-Uda antenna, *Optics Express* **16** (14), 10858-10866 (2008) 267

PUBLICATIONS, IN RECENT YEARS 2004-2023

Refereed journal publications:

1. Giulia Lo Gerfo Morganti, Guillermo D. Brinatti-Vazquez, Roberto Rosati, Sebin Varghese, David Saleta Reig, Ermin Malic, Niek F. van Hulst and Klaas-Jan Tielrooij, The ultrafast time- and energy-dependent transport in ultrathin $MoSe_2$, *Nat.Comm.* submitted jan 2024.
2. Martin Hörmann, Franco V.A. Camargo, Niek F. van Hulst, Giulio Cerullo and Matz Liebel, Ultra-broadband Optical Diffraction Tomography, *Light Science and Applications*, submitted jan 2024; [LSA20240111]; arXiv preprint arXiv:2401.07391.
3. Guillermo D. Brinatti Vazquez, Giulia Lo Gerfo Morganti, Cvetelin Vasilev, C. Neil Hunter, Niek F. van Hulst, Structured Excitation Energy Transfer: Tracking Exciton Diffusion below Sunlight Intensity, *ACS Photonics*. submitted jan 2024; Manuscript ID: ph-2024-00004q.
4. Manuel López-Ortiz, Luca Bolzonello, Matteo Bruschi, Elisa Fresch, Elisabetta Collini, Chen Hu, Roberta Croce, Niek F. van Hulst, Pau Gorostiza, Photoelectrochemical two-dimensional electronic spectroscopy (PEC2DES) of photosystem I to study charge separation dynamics in photosynthesis, *Chemical Sciences*, submitted nov. 2023; SC-EDG-11-2023-005929.
5. Luca Bolzonello; Niek F. van Hulst; Andreas Jakobsson, "Fisher Information in Time-Domain Spectroscopy: Spectroscopy on a Budget", 2023; arXiv preprint arXiv:2303.07454.
6. Luca Bolzonello, Matteo Bruschi, Barbara Fresch and Niek F. van Hulst, Non-Linear Optical Spectroscopy of Molecular Assemblies: What Is Gained and Lost in Action Detection? *J. Phys. Chem. Lett.* **14**, 11438−11446 (2023); https://doi.org/10.1021/acs.jpclett.3c02824
7. Brinatti Vazquez GD, Lo Gerfo Morganti G, Block A, van Hulst NF, Liebel M & Tielrooij KJ, 'Spatiotemporal Microscopy: Shining Light on Transport Phenomena. Review paper', *Advanced Electronic Materials*, 2300584 (2023). Journal Back Cover.
8. Fagiani L, Bolzonello L, Osmond J, de Ceglia D, van Hulst NF, Bollani M & Vincenti MA, 'Dual-mode polarization control with quasi-bound states in the continuum', *Advanced Optical Materials*, 2301456 (2023); https://doi.org/10.1002/adom.202301456
9. Lo Gerfo M G, Bolzonello L, Bernal-Texca F, Martorell J & van Hulst NF, 'Spatiotemporal Mapping Uncouples Exciton Diffusion from Singlet-Singlet Annihilation in the Electron Acceptor Y6', *J. Phys. Chem. Lett.* **14**, 7, 1999 – 2005 (2023). Journal Cover.
10. Block A, Yu R, Un L-W, Varghese S, Liebel M, van Hulst NF, Fan S, Tielrooij K-J, Sivan Y, 'Observation of negative effective thermal diffusion in gold films', *ACS Photonics* **10**, 4, 1150-1158 (2023).
11. Sağlamkaya E, Musiienko A, Shadabroo MS, Sun B, Chandrabose S, Shargaieva O, Lo Gerfo Morganti G, van Hulst NF, Shoaee S, "What's special about Y6; the working mechanism of neat Y6 organic solar cell', *Materials Horizons* **10**, 1825–1834 (2023).
12. Martin Hörmann, Federico Visentin, Andrea Zanetta, Johann Osmond, Giulia Grancini, Niek F. van Hulst, Matz Liebel, Giulio Cerullo and Franco V.A. Camargo, 'High-Sensitivity Visualization of Ultrafast Carrier Diffusion by Wide-Field Holographic Microscopy', *Ultrafast Sciences* **3**, 0032 (2023).
13. Unai Ortiz-Orruño, Romain Quidant, Niek F. van Hulst, Matz Liebel & Jaime Ortega Arroyo, Simultaneous sizing and refractive index analysis of heterogeneous nanoparticle suspensions, *ACS Nano* **17** (1), 221–229 (2023); https://doi.org/10.1021/acsnano.2c06883
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Plus another ~ 152 papers (WOS) in the period 1986-2004

PhD-Thesis: Niko F. van Hulst, *Cross-sections for rotationally inelastic scattering of formaldehyde*. Ph.D. thesis, University of Nijmegen, the Netherlands (1986).
Promotor: prof.dr. A. Dymanus, co-referent: dr. J.J. ter Meulen

INVITED LECTURES AND SEMINARS, IN RECENT YEARS

Regular presentations at international conferences (~15/year) in the fields of nanophotonics, nanoscopy and singe molecule detection, physics of biological systems, organized by EPS, OSA (CLEO/QELS), MRS, ACS, EOS, SPIE, NanoMeta, GRCs, NFO series, QuEBS series, DINAMO series...
Currently around 320 talks total on invitation given at international conferences and symposia.

1. 25 Feb 2024, Chair, "NanoLight Network action" · Nanolight 2024 Workshop, organizers L. Martín-Moreno & Niek van Hulst, Benasque, Aragon, 25 Feb – 2 March 2022 · (Spain)
2. 22 Sep 2023, Keynote speaker, "Nature & Photosynthesis: Lessons for physicists " - Photons in the Nanoworld: UNAM-ICFO Queretaro 18-22 September 2023 , Mexico
3. 22 Aug 2023, Invited, "Taking snapshots in the bio-nano-world" - Summer fellows lecture 2023 ICFO Castelldefels, Spain
4. 23 Jun 2023, Invited talk, "Tracking Energy Transfer in Space & Time" - Annual LaserLaB Symposium 2023, VUAmsterdam, Netherlands
5. 07 Jun 2023, Invited talk, "Natural and synthetic energy materials: tracking energy transfer in space and time" - Discussions on Nano & Mesoscopic Optics, DINAMO 2023 Svolvaer, Norway
6. 31 Mar 2023, Keynote speaker, "Near-field back to the Far-field" - NIO-days, L2N laboratory, University of Troyes, France, France
7. 12 Oct 2022, Discussion panel, "Scientific careers: Why one should embark in a PhD and/or in a PostDoc ? " · Foremost NanoPhotonics, 11-14 October 2022, Erice (Italy)
8. 30 Sep 2022, Invited, discussion panel, "Why energy transfer? (y-et 2022) " · Molecular Photonic Breadboards Workshop 2022, Exeter, UK (online)
9. 28 Sep 2022, talk, "Photothermal imaging in 3D" · TROPHY, Pathfinder, Kick-off, Politecnico Milano (Italy)
10. 28 Jul 2022, Invited talk, "Moving Light on the NanoScale" · MOLE Workshop, Donostia, 25-29 July 2022 (Spain)
11. 18 May 2022, Discussion panel, " Early stage researchers MUSIQ workshop" · MUSIQ-ITN workshop, GlaxoSmithKline, Stevenage, may 2022 (England, UK)
12. 06 Mar 2022, Chair, "NanoLight Network action" · Nanolight 2022 Workshop, organizers L. Martín-Moreno & Niek van Hulst, Benasque, Aragon, 6-11 March 2022 · (Spain)
13. 3 Aug 2021, ICFO Summer fellows lecture: “Let there be light……. from the stars to molecules”
14. 20 Jun, 2021, Chair symposium EG – Light-matter Interactions at the Nano-scale, CLEO/EQEC-2021 Muenchen, Germany
15. 20 Jan, 2021, Discussion panel, MUSIQ-ITN workshop, MUSIQ-ITN virtual conference. COVID can't stop the MUSIQ. GlaxoSmithKline England + Cardiff University, UK - United Kingdom
16. 9-11 Nov 2020, Chair, introduction, discussion leader, S3IC 2020: Single-Molecule Sensors and NanoSystems International Conference, Barcelona, Catalunya.
17. 30 Sep, 2020, Invited talk, Near-field Interference for Local Field Shaping, 3PM event at ImagineNano 2020, European Conf. Nanoscience & Nanotechnology, Bilbao Exhibition Centre (BEC), Basque Country, 29 Sep -1 Oct 2020.
18. 14 May, 2020, Ultrafast Stimulated Emission Microscopy of Single Nanocrystals, CLEO-2020: Conference on Lasers and Electro-Optics, Converted into "The 2020 Virtual CLEO Conference, 10-15 May 2020, USA
19. 11 May, 2020, Watching the Dialogue between Molecules and Nanoantennas, CLEO-2020: Conference on Lasers and Electro-Optics, Converted into "The 2020 Virtual CLEO Conference, 10-15 May 2020, USA
20. 9 Mar, 2020, Chair, NanoLight network actions, Nanolight 2020 Workshop, organizers L. Martín-Moreno & Niek van Hulst, Benasque, Aragon, 8-14 March 2020, Spain.
21. 8 Jan, 2020, Invited talk, Mapping femtosecond transient dynamics of single Q-dots, thin films and molecular complexes, E3S - Exciton Engineering in Emerging Semiconductors, CaixaForum, Madrid, 8-9 January 2020, Spain.
22. 13 Dec 2019 – Lecture on Nobel Prize in Physics 2019, ICFO-day, Hotel Don Rei Jaume, Castelldefels (Barcelona).
23. 11 Dec 2019 - "Lecture on NanoPhotonics" MUSIQ ITN-school, Institute Fresnel, 11-13 December 2019, Marseille (France)

24. 25 Nov 2019 -·"The Nanophotonic Dialogue between Antennas and Molecules" Microscopy and nanotechnology Workshop, Univ. of Gothenburg, 25-26 November 2019, Gothenburg (Sweden)
25. 20 Nov 2019 - "Ultrafast nano-optics" The Micro- and Nanophotonics Days 2019, Ecole Politecnique, 20-21 November 2019, Palaiseau (France)
26. 19 Nov 2019 - "The Nanophotonic Dialogue between Antennas and Molecules " ·Colloquium, Dept Physics, University of Bristol (United Kingdom)
27. 10 Oct 2019 - "Looking at Single Photon Emitters on nm and fs Scale" QUTIF Research School, "Ultrafast Dynamics in Atoms, Molecules, Nanostructures", 7–10 Oct 2019, Freiburg (Germany)
28. 3 Sep 2019 - "Nanoscale and ultrafast control of quantum emitters", NanoPhotonics: Foundations and Applications, 1-6 September 2019, Monte Verita, Ascona (Switzerland)
29. 24 Jun 2019 - "CLEO/Europe, EQEC Symposium EG – "Light Matter Interaction at the Nanoscale", Germany 23-27 June 2019, ·Munich (Germany)
30. 17 Jun 2019 - "NanoPhotonics for the SUNRISE Roadmap" SUNRISE Stakeholder Workshop, 17-18 June 2019, Brussels (Belgium)
31. 29 May 2019 - "NanoPhotonics: where do the photons go", NanoSpain Conference 2019, 28-31 May 2019, Barcelona
32. 29 Apr 2019 - "Coherent control of molecular dynamics and ultrafast spectroscopy of single molecules", Quantum Bio-Photonics Incubator, OSA Headquarters, Washington DC (USA).
33. 23 Apr 2019 - "Looking at the Near-Field in the Far-Field", DINAMO 2019, Discussions on Nano & Mesoscopic Optics, 22-26 April 2019, San Cristóbal island, Galapagos (Ecuador)
34. 4 Apr 2019 - "Tracking ultrafast single molecule dynamics", S3IC 2019 - Single-Molecule Sensors and NanoSystems International Conference, 3-5 April 2019, Muenchen (Germany)
35. 18 Mar 2019 - "Ultrafast nano-optics", Heraeus Seminar on "Ultrafast Quantum Phenomena in the Near Field" 18-20 March 2019, Bad Honnef (Germany)
36. 26 Nov 2018 - "Probing Single Molecular Dynamics at Ultrafast Time Scales & in Nanoscale Volumes", MRS - Materials Research Society, 25-30 November 2018, Boston (USA)
37. 21 Nov 2018 - "Antennas for Molecules", Colloquium at School of Physics and Astronomy at the University of Birmingham (United Kingdom)
38. 28 Sep 2018 - "Efectos cuánticos en la fotosíntesis", La Llum a les ones: La Nit dels Investigadors, CCCB Barcelona ()
39. 13 Sep 2018 - "Plasmonic Cavity Coupling / Room-temperature ultrafast nonlinear spectroscopy of a single molecule", XXV International Summer School Nicolás Cabrera, "Manipulating Light and Matter at the Nanoscale", 10-14 september 2018, Miraflores de la Sierra, Madrid (Spain)
40. 27 Aug 2018 - "Plasmonic Cavity Coupling", NFO15 - Near Field Optics and Related Techniques, 26-31 August 2018, Troyes (France).
41. 24 Jul 2018 - "Ultrafast nano-optics", Enrico Fermi International School of Physics, "Nanoscale Quantum Optics", 22-28 July 2018, Varenna, Lago di Como (Italy).
42. 16 Jul 2018 - "Single-Molecule Nanophotonics and Plasmonics", Gordon Research Conference on "Single-Molecule Approaches to Biology", 15-20 July 2018, Mount Snow Resort, Vermont (USA).
43. 9 Jul 2018 - "Molecular spectroscopy: singles, ultrafast and nanoscale", X-CIE: Iberian Conf. Spectroscopy, 9-11 July 2018, Lisbon (Portugal)
44. 15 June 2018, "Coherent control of nano-optical excitations", Plasmonica2018, International School of Plasmonics and Nano-Optics, 15-18 June 2018, Cetraro, Italy.
45. 9 Apr 2018 - "Room-temperature ultrafast nonlinear spectroscopy of a single molecule", ECONOS2018 - European Conference on Nonlinear Optical Spectroscopy, 9-12 April 2018, Milano (Italy).
46. 3 Apr 2018 - "Ultrafast meets Ultrasmall: Pushing Molecular Spectroscopy to the Nanoscale", J2IFAM2018, The Conference of Young Scientists in AMO Physics, 3-6 April 2018 Barcelona.
47. 12 Mar 2018 - "Coordination NanoLight + invited talk", NanoLight2018, 11-16 March 2018, Benasque (Spain), invited talk presented by Matz Liebel.
48. 8 Feb 2018 - "Transient absorption spectroscopy and photon statistics of single molecular complexes", Quenthrel (ERC) workshop, 'New ideas about dynamics and mechanisms of energy relaxation and transport', 8-9 February 2018, Padova (Italy).

49. 3 Nov 2017 - "Looking into Single Molecules at the last Frontier", Joan van der Waals colloquium at the Leiden Institute of Physics (the Netherlands).
50. 20 Sep 2017 - "SNOM "the impossible one", 20 years Nano-Optics, International Symposium, Max Planck Institute for Light, Erlangen, 19-21 Sep 2017 (Germany).
51. 18 Sep, 2017 - "Molecular NanoPhotonics", Seminar week, Institut für Quantenoptik of Leibniz Universität Hannover, 18 Sep 2017i, Molins del Rei, Barcelona.
52. 15 Sep 2017 - "Single Molecule Spectroscopy in the Femtosecond Regime", Keynote speaker. PicoQuant, 23rd International Workshop on "Single Molecule Spectroscopy and Super-resolution Microscopy in the Life Sciences", 13-15 September 2017, Berlin (Germany).
53. 13 Sep 2017 - ""Tracking femtosecond dynamics at the nanoscale"", NANOP2017, Nanophotonics and Micro/Nano Optics International Conference, 13-15 Sep 2017, Barcelona.
54. 12 Sep, 2017 - "Perspectives for New Scientists", Launching event BIST-UPF Master of Multidisciplinary Research in Experimental Sciences, 12 sep 2017, Pompeu Fabra, Barcelona.
55. 5 Sep 2017 - "Mapping the nanoscale antenna-coupling strength of single molecules", ICES2017, International Conference on Enhanced Spectroscopies, 4-7 Sep 2017 Munich (Germany).
56. 8 Aug, 2017 - "Looking at Coherences in Single Molecules, Quantum Dots and Plasmonic Antennas", Gordon Research Conference "Quantum Control of Light & Matter", Connecting Quantum Control and Quantum Technologies, 6-11 August 2017, Mount Holyoke College, South Hadley, MA (USA).
57. 19 Jul 2017 - "Ultrafast broadband transient absorption spectroscopy of a single molecule", XXXVI Reunión Bienal de la Real Sociedad Española de Física, symposium "Molecular Physics at the Edge", 17-21 July 2017 Santiago/C, Galicia (Spain).
58. 18 Jul, 2017 - "Nanoscale control of antenna-coupling strength g for bright single photon sources", XXXVI Reunión Bienal de la Real Sociedad Española de Física, symposium "Quantum Technologies: joint symposium Quantum Information and Quantum & Non-linear Optics", 17-21 July 2017, Santiago/C, Galicia, (Spain).
59. 6 Jul 2017 - "NanoPlasmonics: coherent control, strong coupling, bright photon emitters", Plasmonica 2017, Lecce, Italy, 5-7 July 2017 (Italy).
60. 27 Jun 2017 - "EG-5: Emission control and strong coupling & EPS prize award", CLEO/Europe-Munich 25-30 June 2017 (Germany).
61. 16 Jun 2017 - "Tracking femtosecond dynamics at the nanoscale", Exeter EPSRC Centre for Doctoral Training in Metamaterials (XM2), University of Exeter (UK).
62. 17 May 2017 - "Tracking femtosecond dynamics at the nanoscale ", DINAMO 2017, 14-19 May 2017, Siglufjordur (Iceland).
63. 9 May, 2017 - "Coherent control, strong coupling, bright photon emitters"", CQS2017 - Complex Quantum Systems dynamics, 8-12 May 2017 Cartagena, Murcia (Spain)
64. 23 Mar, 2017 - "Tracking Femtosecond Dynamics at the Nanoscale", EuroPhotonics POESII Spring School, 22-24 March 2017 Sitges.
65. 27 Feb, 2017 - "Single photon emitter light transport and coupling control", Workshop "Quantum Nanophotonics", Centro de Ciencias de Benasque Pedro Pascual, 27 Feb - 3 Mar 2017 Benasque, Aragon (Spain)
66. 17 Jan, 2017 - "Do Quantum Phenomena Play a Role in Photosynthesis? Tracking Light-Harvesting on the nm and fs Scale", 1st Biology for Physics Conference: Is there new Physics in Living Matter? 15-18 January 2017, Barcelona.
67. 8 Dec, 2016 - "NanoPhotonics: coherent control, strong coupling, bright photon emitters", Quantum and Topological Nanophotonics Workshop, NTU - Nanyang Technical University, Singapore, 7-9 December 2016. (Singapore)
68. 1 Dec, 2016 - "Addressing photon emitters and energy transfer on the nm & fs scale", Physics Colloquium WWU University, 1 Dec 2016, Muenster (Germany)
69. 17 Nov, 2016 - "Colloquium: Discussion and Implications on the 2016 Nobel Prize in Chemistry", ICFO - Institute of Photonic Sciences, Castelldefels, Barcelona, 17 nov 2016
70. 14 Nov, 2016 - "Optical nanoantennas for nanoscale imaging of ultrafast dynamics in single biomolecules", 2nd Microscopy Congress: Utilising Microscopical Technologies as a Tool for Progressing Medical Research, 14-15 November 2016, London, UK (United Kingdom)

71. 2 Nov, 2016 - "Metal Nano-Optics for Control of Non-linear Response and Photon Emission", Third Int. Workshop on Metallic Nano-Objects (MNO 2016), University Lyon, 2-4 November 2016 (France)
72. 27 Oct, 2016 - "“Femtosecond dynamics at the nanoscale”", "Leading Light Symposium" Fom Institute AMOLF, 27 October 2016, Amsterdam, the Netherlands (The Netherlands)
73. 21 Oct, 2016 - "Nanoantennas for cavity QED: Nanoscale control of coupling strength g for bright single photon sources", SCOM - Strong Coupling with Organic Molecules, 19-21 october 2016, Palacio Miramar, Donostia-San Sebastián, Pais Vasco
74. 10 Oct, 2016 - "Light at the nanoscale: ultrafast meets ultrasmall", PIER Graduate Week 2016, Interdisciplinary lectures and workshops for PhD students, 10 – 13 Oct 2016, CFEL, Bahrenfeld Campus, Hamburg (Germany)
75. 3 Oct, 2016 - "A bit of Quantum in Photosynthesis? Tracking Lightharvesting on the nm and fs scale", Colloquium INC Instituto Nicolas Cabrera, Universidad Autonoma Madrid, Madrid (Spain)
76. 13 Sep. 2016 - NanoPhotonics Meets Biology, Physics Meets Biology 2016, 12-14 Sept 2016, Cambridge (United Kingdom)
77. 1 Sep. 2016 - Pushing chemical physics to ultrafast and ultralocal, AIP Publishing Horizons: "Future of Chemical Physics" 31 Aug - 2 Sep, St. Edmund Hall, Oxford (United Kingdom)
78. 18 Jul 2016 - Coherent Energy Transfer in Light Harvesting Complexes: addressing single molecules on fs time scale, DPC'16, 19th International Conference on Dynamical Processes in Excited States of Solids, Paris, 17-22 July 2016 (France)
79. 20 Jun 2016 - Femtosecond dynamics at the nanoscale: talking to antenna complexes one-by-one, CEN2016, Conferencia Española de Nanofotonica, 20-22 June 2016, Valencia (Spain)
80. 30 May 2016 - "Coherent feedback control of optical antennas and single photon emitters" , COST workshop WG2: Quantum Coherence on the Nanoscale, Marseille 30 May - 1 June 2016 (France)
81. 9 May 2016 - Femto-nano-photonics, ULTRAFAST PHENOMENA AT NANOSTRUCTURES: Attosecond physics meets plasmonics, Les Houches Physics Center, 8-13 May 2016 (France)
82. 23 Mar 2016 - "Nanoantennas for molecular antennas: revealing quantum responses in individual photosynthetic complexes", Colloquium at CNR-Nano Modena (Italy)
83. 21 Mar 2016 - Coherent control of nonlinear plasmonic response, Topical Meeting on Nonlinear Plasmonics and its Applications, and COST meeting, Rome (Italy)
84. 7 Mar 2016 - Coherent feedback control of optical antenna systems, NanoLight 2016, 7-11 March 2016, Benasque, Aragon (Spain)
85. 16 Feb 2016 - NanoPhotonics: ultrafast control of nanoparticles, nanoantennas and single quantum emitters, NanoPT2016, 16-19 February Braga (Portugal)
86. 27 Jan 2016 - Probing ultrafast energy flow at single molecular level, Workshop, "Molding the flow of charge in photovoltaic devices", Hanse-Wissenschafts-Kolleg (HWK), 27 Jan 2016, Delmenhorst, (Germany)
87. 24 Nov 2015 - Femtosecond dynamics at the nanoscale: talking to antenna complexes one-by-one USTS - Ultrafast Science and Technology Spain I, 24-26 November 2015, CSIC Madrid (Spain)
88. 13 Nov 2015 - Career Session for CIPRIS Fellows QLIMS 2015, Conference on Quantum Light-Matter Interactions in Solid-State Systems, 9-13 November 2015, Barcelona
89. 7 Oct 2015 - Talking to photosynthetic complexes one-by-one: femtosecond dynamics at the nanoscale Int. Symposium, Molecular Basis of Senses meets Quantum Biology, PRBB, Barcelona
90. 25 Sep 2015 - Conclusion of ESF network - Plasmon-BioNanoSense ESF - Plasmon-BioNanoSense, Concluding Symposium, 24-25 Sep 2015, ICFO - Castelldefels (Barcelona)
91. 14 Sep 2015 - Single-Molecule Microscopy and Spectroscopy: Concluding Lecture Single-Molecule Microscopy and Spectroscopy: Faraday Discussion 184, 14-16 Sep 2015, London (United Kingdom)
92. 31 Aug 2015 - Single-Molecule Ultrafast Photonics "Frontiers in Nanophotonics", Monte Verità, Ascona, Switzerland, 30 Aug - 4 Sep 2015 (Switzerland)
93. 29 Jun 2015 - Talking to antenna complexes one-by-one: femtosecond dynamics at the nanoscale QUEBS2015, Florence, 29 June - 2 July 2015 (Italy)
94. 22 Jun 2015. Keynote speaker. Light: Pushing the Fast and the Small. CLEO-Europe, 21-25 June 2015, Munich, Germany.
95. 29 May 2015 - ICFO - Light for the Future European Physical Society: IVth Young Minds Leadership Conference, 29-30 May 2015, ICFO Castelldefels (Barcelona)

96. 29 May 2015 - ICFO - Making Light Work for Society, Conferència CERCA - FAPESP, 28-29 May 2015, Barcelona
97. 6 Apr 2015 - Quantum nano-optics in single light harvesting complexes DINAMO: Discussions on Nano & Mesoscopic Optics, April 8-12, 2015. El Chaltén, Patagonia (Argentina)
98. 18 Mar 2015 - Light harvesting complexes, single molecules and coherences NEW FRONTIERS FOR QUANTUM TECHNOLOGY IN BIOLOGICAL AND BIO-INSPIRED SYSTEMS. 18-19 March 2015, Cambridge (United Kingdom)
99. 24 Feb 2015 - Light-harvesting photo-dynamics: addressing single complexes Workshop: Good Vibrations for Energy Management in Biomolecules, Lorentz Center@Oort, Leiden, 23-26 feb 2015 (Netherlands)
100. 16 Feb 2015. Nanoplasmonics. Plenary address. Nanoplasmonics: Faraday Discussion 178, 16-18 Feb 2015, Chem. Centre, London, United Kingdom.
101. 8 Feb 2015. Keynote speaker, Ultrafast laser pulse control and interaction with nanostructures and molecules SPIE Photonic West, 7-12 Feb 2015, San Francisco, USA.
102. 28 Nov. 2014 - Antennas for Light: Femtosecond Control on the Nanoscale, Enrico Fermi Colloquium, LENS, Florence (Italy).
103. 18 Nov. 2014. Invited talk, "Antennas for Light: Pushing the fast and the small". Invited traveling lecturer, *h*-bar omega OSA student chapter, Max Planck Institute for the Science of Light. Erlangen. Germany.
104. 7 Nov. 2014. Invited talk "Coherences in Photosynthetic Complexes". PM - Course on Quantum Information Technologies. Lisbon. Portugal.
105. 3 Sep 2014. Invited talk, "Femtosecond control on the nanoscale". NFO-13. 13th international conference of Near-field Optics and Nanophotonics. 31 Aug – 4 Sep 2014, Snowbird, Salt Lake City, Utah, USA.
106. 31-Aug-2014. NFO-school "Session 1: Overview of NanoOptics". NFO-13: 13th international conference of Near-field Optics and Nanophotonics. 31 Aug – 4 Sep 2014, Snowbird, Salt Lake City. United States.
107. 27 Aug 2014. Keynote speaker - "Antennas for Light: Ultrafast Photon Control on the Nanoscale". ICO-23, 23rd Conference of the Int. Commission for Optics, 26-29 August, Santiago de Compostela, Galicia, Spain.
108. 3 June 2014. Keynote speaker - "Nanophotonics: pushing sensing to its limits in size and speed". OFS23, 23rd International Conference on Optical Fiber Sensors, 2-5 June 2014 Santander, Cantabria, Spain.
109. 26 May 2014. Invited talk, "Antennas for Light: Femtosecond Control on the Nanoscale". Physics Colloquium, Universität Würzburg, Germany.
110. 23 April 2014. Invited talk, "Exploring Coherences in Single Molecules". CondMatSem Seminar, University of Barcelona, Barcelona.
111. 24 March 2014. Keynote speaker - "Light: Pushing the fast and the small". COST Action MP1302 Nanospectroscopy, 23-28 March 2014, Tuebingen. Germany.
112. 5 March 2014. Invited talk "Antennas for Light: Femtosecond Control on the Nanoscale". NanoLight2014, 3-7 March 2014, Benasque, Aragon, Spain.
113. 30 Jan 2014. Invited talk "Light: Pushing the fast and the small ". NanoGune 5 year-celebration conference, 30 Jan.2014 Donostia, Pais Vasco.
114. 14 Jan 2014. Keynote speaker - "Antennas for Light: Femtosecond Control on the Nanoscale". VW-foundation „Integration of Molecular Components in Functional Macroscopic Systems“, 13-15 Jan. 2014 Hannover, Germany.
115. 12 Nov 2013. Invited talk "Antennas for Light: Femtosecond Control on the Nanoscale". Physics Colloquium, Bayreuth. Germany.
116. 10 Oct 2013. Invited talk "Antennas for Light: Femtosecond Control on the Nanoscale". Colloquium, Institut Fresnel, 10 October 2013. Marseille. France.
117. 9 Sep 2013. Invited talk "Femtosecond Coherent Control of Single Chromophores and Photosynthetic Complexes". 246th ACS National Meeting, Chemistry at the Space-Time Limit", 8-12 Sept. 2013, Indianapolis. United States.

118. 27 Aug 2013. Keynote speaker - "Tracking nanoscale coherent energy transfer in light harvesting complexes". Complex NanoPhotonics Science camp, Cumberland Lodge, Windsor Great Park, 27-30 August 2013. Berkshire. United Kingdom.
119. 26 Aug 2013. Keynote speaker - "Femtosecond Spectroscopy on Single Light-Harvesting Complexes Reveals Robust Coherent Energy Transfer". ECSBM, 15th European Conference on the Spectroscopy of Biological Molecules, 25-30 August 2013, Oxford. United Kingdom.
120. 5 Aug 2013. Invited talk "Scanning Antenna Probes". DPG Symposium "Light at the nano-tip", 5-8 August 2013, Bad Honnef, Germany.
121. 17 Jul 2013. Oral communication - "Quantum Coherence explored at the level of Individual Light-Harvesting Complexes". RSEF - biannual meeting of the Spanish Physical Society, 15-18 July 2013. Valencia. Spain.
122. 2 Jul 2013. Invited talk "Addressing Quantum Coherence on the Nanoscale ". QuEBS - Quantum effects in biological systems, 30 June - 3 July 2013. Vienna. Austria.
123. 21 May 2013. Keynote speaker - "Antennas for Light: Femtosecond Control on the Nanoscale". Optics Days 2013, Finnish Optical Society (FOS), 20-21 May 2013, Helsinki, Finland.
124. 16 May 2013. Invited talk "Quantum Coherence Explored at the level of Individual Light-Harvesting Complexes". CLEO/EUROPE - IQEC 2013, JSIV - Joint Symposium on Quantum Coherent Effects in Biology, 13-17 May 2013, Munich, Germany.
125. 23 Apr 2013. Invited talk "Nanophotonics @ ICFO". France-Spain bilateral Symposium - National and Regional policies in Nanoscience & Nanotechnology, at ImagineNano, Bilbao, Pais Vasco.
126. 23 Apr 2013. Invited talk "Non-dipolar & magnetic interactions with optical antennas". PPM2013 - Symposium at ImagineNano, 23-26 April 2013, Barakaldo – Bilbao, Pais Vasco.
127. 10 Apr 2013. Invited talk "Persistent Quantum Coherence and Time-Varying Energy Transfer Pathways in Single Light-Harvesting Complexes". Int Conference on Complex Quantum System Dynamics, 8-12 April 2013, Cartagena, Spain.
128. 5 Apr 2013. Invited talk "Exploring Coherences in single Molecules". Colloquium, Fleming group, University of California at Berkeley, 5 April 2013. Berkeley. United States.
129. 4 Apr 2013. Invited talk "Exploring Coherences in single Molecules". Colloquium at Stanford University, Dept. of Chemistry, Braun Lecture Hall, 4 April 2013, Stanford University. United States.
130. 13 Mar 2013. Invited talk "Non-Dipolar & Magnetic Interactions with Optical Antennas". DPG Spring Meeting, Section Condensed Matter Physics, Symposium Quantum Plasmonics, 13 March 2013, Regensburg. Germany.
131. 11 Mar 2013. Invited talk "Quantum Coherence Explored at the level of Individual Light-Harvesting Complexes". Quantum Transport in Light-Harvesting Bio-NanoStructures, 11 March 2013, Florence, Italy.
132. 8 Mar 2013. Invited talk "Antennas for Light". Colloquium, COBRA Research Institute, TU-Eindhoven, 8 March 2013, Eindhoven, the Netherlands.
133. 14 Feb 2013. Invited talk "Quantum Coherence Explored at the level of Individual Light-Harvesting Complexes". Harvard University, Physical Chemistry Seminar, R.B. Woodward Lectures in the Chemical Sciences, 14 Feb 2013, Cambridge. United States.
134. 12 Dec 2012. Invited talk "Antennas for light". Colloquium Bilkent University, 12 December 2012, Ankara, Turkey.
135. 15 Oct 2012. Invited talk "Light control by antennas: from plasmonics to light harvesting". Coherent Raman Scattering Microscopy (microCARS2012), 14-16 October 2012, Naurod, Germany.
136. 11 Oct 2012. Invited talk "Antennas for Light: phase matters". Colloquium, Faculty of Sciences, LaserLaB, VU University 11 October 2012. Amsterdam, the Netherlands.
137. 27 Sep 2012. Plenary address - "A Scanning Resonant Dipole Antenna Probe". European Optical Society (EOS), General Meeting, 25-28 Sep. 2012, Aberdeen. United Kingdom.
138. 26 Sep 2012. Keynote speaker - "Femtosecond Control of NanoAntennas: from plasmonics to natural systems". European Optical Society (EOS), General Meeting, 25-28 Sep. 2012, Aberdeen. United Kingdom.
139. 11 Sep 2012. Molecular Quantum Optics. Keynote speaker. Int. Summer School on “Nano-Photonics”, DFG-Center for Functional Nanostructures, 10-13 Sep. 2012, Bad Herrenalb, Germany. Bad Herrenalb. Germany

140. 7 Sep 2012. Invited talk "Closing lecture ESF PlasmoBioNanoSense". NFO-12, Int. Conference on Near-field Optics and Related phenomena, San Sebastian 3-7 September 2012, Donostia, Pais Vasco.
141. 24 Jul 2012. Invited talk "Scanning antenna probes for light control on the nanoscale". ICN+T-2012, International Conference on Nanoscience + Technology, 23-27 July 2012, Paris. France.
142. 18 Jul 2012. Invited talk "Does NATURE exploit quantum Effects?". ICFO summer Lectures. Castelldefels, Barcelona.
143. 9 Jul 2012. Invited talk "Persistent Quantum Coherence and Time-Varying Energy Transfer Pathways in Single Light-Harvesting Complexes". UP2012 - XVIII Int. Conference on Ultrafast Phenomena, 8-13 July 2012, Lausanne, Switzerland.
144. 4 Jul 2012. Keynote speaker "Light Control of Molecular Materials: by Optical Antennas and Shaped Pulses". MolMat2012, Vth Int. Conf. on Molecular Materials, 2-6 July 2012, Barcelona.
145. 7 Jun 2012. Invited talk "Plasmonic NanoAntennas: Femtosecond Phase Control and Multipolar Emission". PECS-X: 10th International Symposium on Photonic and Electromagnetic Crystal Structures, June 3-8, 2012. Santa Fe. United States.
146. 5 Jun 2012. Invited talk "Time-Varying Coherent Energy Transfer Pathways in Photosynthetic Light-Harvesting Complexes". Quantum Effects in Biological Systems, June 4-6, 2012, University of California Berkeley, California 94720, United States.
147. 15 May 2012. Invited talk. E-MRS 2012 Spring meeting, May 14-18, 2012, Congress Centre - Strasbourg, France.
148. 12 Mar 2012. Coupling quantum emitters into new electro-magnetic modes. Invited talk. NanoLight2012: Int. Workshop CONSOLIDER program NanoLight.es, March 2012. Benasque. Spain
149. 13 Feb 2012. Coherent control of single molecules, complexes and nanoantennas. Physics Colloquium, University of Ulm, 13 February 2012. Ulm. Germany
150. 15 Dec 2011. Controlling the interplay between plasmonic nanoantennas, molecules and single photons. Invited talk. Kick-off meeting SFB 951 HIOS - "Hybrid Inorganic/Organic Systems for Opto-Electronics", 14-16 dec 2011, Institute of Physics, Humboldt-University, Berlin, Germany
151. 02 Dec 2011. Talking to Molecules on the Nanoscale. Plenary address. CFN-symposium: DFG-Center for functional Materials, 2-3 Dec 2011, Karlsruhe. Germany
152. 23 Nov 2011. Coherent control of single molecules, complexes and nanoantennas. Invited talk. Harrie Massey Lecture, 23 nov 2011, Physics Colloquium, University College London, UK.
153. 4 Nov 2011. Cross-roads in the bio-nano-quantum world. Invited talk. Joan van der Waals Colloquium, Leiden Institute of Physics, Leiden University, 4 Nov 2011. Leiden. Netherlands
154. 24 Oct 2011. Control of nanoscale interactions by optical pulse shaping and nano-antennas. Keynote speaker. MediNano4, 4th Mediterranean Conference on NanoPhotonics, 24-26 July 2011, Rome, Italy.
155. 17 Oct 2011. Controlled of nanoscale optics by nanoantennas and pulse shaping. Invited talk. Workshop Quantum and Nano Plasmonics, 16-20 October 2011, Bad Honnef, Germany.
156. 29 Sep 2011. Controlled coupling of single photon emitters and nanoantennas. Invited talk. Advanced DPG Physics School, Nanoantennas and Hybrid Quantum Systems, Wilhelm and Else Heraeus - Foundation, 25-29 Sep 2011, Bad Honnef, Germany.
157. 25 Jul 2011. Coherent control of single molecules at room temperature. Invited talk. Faraday Discussion 153, Coherence and Control in Chemistry, 25-27 July 2011 University of Leeds, UK.
158. 13 Jul 2011. Single molecules: control on femtosecond and nanometer scale. Invited talk. WE Heraeus Seminar 488: Single Molecule Spectroscopy Current Status and Perspectives, 12-15 july 2011, Chemnitz, Germany.
159. 4 May 2011. Optical nanoantennas: controlled emission of single photon sources . Invited talk. CLEO2011, the Conference on Lasers and Electro-Optics, 1-6 May 2011, Baltimore, Maryland, USA.
160. 26 Apr 2011. NanoAntennas for control of photon emission. Invited talk. Workshop FP7 STREP project "Antennas", 26 April 2011, Heidelberg, Germany.
161. 18 Apr 2011. Control of single photon emitters by optical antennas and shaped pulses. Invited talk. FOM-Institute AMOLF - colloquium, Amsterdam, Netherlands.
162. 22 Mar 2011. Coherent Control of Single Molecules at Room Temp. Oral communication. APS2011 - American Physical Society, March Meeting, 21-25 March 2011, Dallas, Texas. United States

163. 21 Mar 2011. Optical nanoantennas: controlled emission of single photon sources. Invited talk. APS2011 - American Physical Society, March Meeting, 21-25 March 2011, Dallas, Texas. United States
164. 28 Feb 2011. Discussion Leader Workshop, coordinator CONSOLIDER program. Discussion panel. 3rd Annual meeting CONSOLIDER NanoLight, 28 feb - 1 march, "La Cristallera', Miraflores, Madrid. Spain
165. 24 Feb 2011. Nanophotonics - A Forward Look: input from Foresight Workshop . Invited talk. Photonics-21, Annual Meeting; Working Group 6 on Design & Manufacturing of Components & Systems. Brussels. Belgium
166. 15 Feb 2011. Control of single quantum emitters by phase shaped excitation and optical antennas. Invited talk. 2nd International workshop on fundamentals of Light Matter interaction, 13-16 February 2011. Porto de Galinhas. Brazil; presented by Tim Taminiau.
167. 5 Jan 2011. Directed emission from quantum dots. Invited talk. NanoMeta2011: 3rd Int. Topical meeting on Nanophotonics and Metamaterials, 3 – 6 January 2011, Seefeld, Tirol, Austria.
168. 30 Nov 2010. Antennas for Light: Interfacing antennas to single photon emitters. Invited talk. MRS (Materials Research Society) fall2010 meeting: Symp.M Resonant Optical Antennas. Boston. United States.
169. 29 Nov 2010. Control of single quantum emitters by phase shaped excitation and optical antennas. Invited talk. Colloquium: Institute of Optics, Rochester University, USA.
170. 29 Oct 2010. Controlling Single molecules by Optical Antennas and Broad-band Lasers. Invited talk. Applied Molecular Physics Symposium. Nijmegen. Netherlands
171. 13 Sep 2010. Coherent control of plasmonic antennas. Invited talk. Metamaterials '2010: 4th Int. Congress on Advanced Electromagnetic Materials in Microwaves and Optics. Karlsruhe. Germany
172. 9 Sep 2010. Plasmonic fibre probes as nanoantennas for local sensing and light control. Invited talk. EWOFS'2010 - European Workshop on Optical Fibre Sensors, Porto 6-10 September 2010. Porto. Portugal.
173. 4 Aug 2010. Nano-antenna control of single photon emitters; SPIE 7757-53. Keynote speaker. SPIE NanoScience + Engineering: Optics + Photonics, San Diego Convention Center, California, United States, 1 - 5 August 2010 . San Diego. United States
174. 12 Jul 2010. Spatio-temporal Control of Single Photon Emission. Invited talk. Summer School - Advances on Nanophotonics III, 11-18 July 2010, Ettore Majorana Center, Erice, Sicily, Italy
175. 29 Jun 2010. Optical microscopy goes "nano": a perspective. Invited talk. Light 4 Health, ICFO - Barcelona, 28-29 June 2010. Castelldefels, Barcelona.
176. 24 Jun 2010. Control of single molecule Photon emission by plasmonic Nano-antennas. Invited talk. PLASMONICA: deteccion sobre nanoestructuras metalicas, Jaca (Huesca) 21-25 June 2010. Jaca. Spain
177. 15 Jun 2010. Phase controlled driving of nanoantennas and single photon emitters. Invited talk. Gordon Research Conference: Plasmonics, June 13-18 2010 Colby College, Waterville, ME, United States
178. 17 May 2010. Control of Single Photon Emitters Coupled to Optical Nano-Antennas. Invited talk. Colloquium, Physics/Chemistry, ETH Zurich. Zurich. Switzerland
179. 14 Apr 2010. Photonic antennas. Keynote speaker. EuCAP'2010, 4th European Conference on Antennas & Propagation, 12-16 April 2010 Barcelona.
180. 22 Mar 2010. Control of Single Photon Emitters Coupled to Optical Nano-Antennas. Invited talk. DPG Spring Meeting, Regensburg, 22-25 March 2010. Regensburg. Germany
181. 11 Mar 2010. ICFO - New Photonics Adventure in Spain. Plenary address. Bilateral meeting Japan-Spain, Casa de Asia, Barcelona, 10-11 March 2010. Barcelona.
182. 26 Feb 2010. Single-Molecule and Nano-Antenna Ultrafast Photonics. Invited talk. Workshop "Novel trends in NanoPhotonics", NanoScience Laboratory, University of Trento. Italy.
183. 12 Feb 2010. Introducing ICFO: Spatio-temporal control of single photon emitters. Invited talk. X Jornades científiques del Departament d'Estructura i Constituents de la Matèria. Castelldefels. Barcelona.
184. 10 Feb 2010. Nanophotonics: scaling antennas up to 500THz, down to 100 nm. Invited talk. Colloquium CRnE - Center for Research in Nanoengineering, Universitat Politecnica de Catalunya . Barcelona.

185. 7 Dec 2009. Nanoscale Control of Single Photon Emitters by Optical Nano-Antennas and Tailored fs Pulses. Keynote speaker. “Positioning of Single Nanostructures – Single Quantum Devices” 7-8 Dec. 2009. Lauterbad-Freudenstadt. Germany
186. 17 Nov 2009. Tutorial on optical antennas. Plenary address. Photonics4Life: NoE scientific meeting. Castelldefels, Barcelona.
187. 28 Oct 2009. Controlling photon emitters on nanometer and femtosecond scale. Invited talk. nanoICT Symposium 2009. Donostia - San Sebastian, Pais Vasco.
188. 27 Oct 2009. Single molecules; single photon emitters; addressing the nanoscale by far and near field optical methods. Participation by invitation. nanoICT School on NanoOptics and NanoPhotonics. Donostia - San Sebastian, Pais Vasco.
189. 5 Oct 2009. Light as a tool: Nanophotonics at ICFO (opening presentation for ATLAS community). Plenary address. ATLAS collaboration meeting 2009, UABarcelona. Barcelona.
190. 28 Sep 2009. Nanoscale Control of Single Photon Emitters by Optical Nano-Antennas and Tailored fs Pulses. Invited talk. NANO2009 & ATOM BY ATOM - ‘Perspectives in nanoscience and nanotechnology" 28-30 Sep 2009. Donostia - San Sebastian, Pais Vasco.
191. 16 Sep 2009. Femtosecond time-resolved spectroscopy of single molecules. Keynote speaker. PicoQuant, 15th annual meeting on single molecule detection for life science, 15-18 September 2009, Berlin, Germany.
192. 9 Sep 2009. Nanoantenna control of excitation and emission. Keynote speaker. TNT2009 - Trends in NanoTechnology, 7-11 September 2009, Barcelona.
193. 6 Aug 2009. Phase shaped excitation of single molecules and nano-antennas. Invited talk. Gordon Research Conference on "Quantum Control of Light & Matter", August 2-7, 2009. Mount Holyoke, South Hadley, MA United States.
194. 14 Jul 2009. Control of the nanoscale field by shaped few fs-pulse excitation of nanoparticles. Invited talk. LPHYS'09 18th International Laser Physics Workshop, July 13-17, 2009, Barcelona.
195. 1 Jul 2009. Control and detection of nanoscale optical fields. Invited talk. HIM-HighLights in MicroTechnology, Focus 2009 - MicroOptics, 22 June - 4 July 2009 Neuchatel. Switzerland
196. 17 Jun 2009. JSV1: Optics Beyond the Rayleigh Resolution Limit I. Plenary address. CLEO/Europe 2009 - European Conference on Lasers and Electro-Optics. Munich. Germany
197. 17 Jun 2009. Addressing the nanoscale by optical nano-antennas. Invited talk. ECBO 2009 - European Conferences on Biomedical Optics; at World of Photonics Congress 2009. Munich. Germany
198. 26 May 2009. NanoPhotonics. Invited talk. UPV/EHU NanoScience 2008/2009, NanoTechnology oriented research activities. Donostia - San Sebastian, Pais Vasco.
199. 14 May 2009. Towards optical control of single molecules and nano-antennas by femtosecond pulse shaping. Invited talk. SAUUL: Second meeting of Consolider program SAUUL on Ultrafast Ultra-intense Lasers. Castelldefels, Barcelona.
200. 27 Apr 2009. Optical Nano-Antennas - old concepts, new applications ?. Invited talk. Photonics Seminar for EU FP7 Photonics unit of Directorate General INFSO. Brussels. Belgium

Plus another 266 presentations in earlier years 1988-2009.