

Dr. Jochem H. Smit

Postdoctoral Researcher

jhsmit@gmail.com

jochem.smit@kuleuven.be

Nationality

Dutch

Date of Birth

23-09-1988

Summary My interest in mechanisms of physical law and biological machinery is what drives me to do research. I have a strong background in both Chemistry and Physics as well as programming proficiency which allows me to contribute to a broad range of interdisciplinary research projects.

Postdoctoral Training

2019–Present

Rega Institute for Medical Research

KU Leuven

Established smFRET microscopy and developed software for the analysis of HDX-MS data at increased residue-level resolution.

Education

2015–2019

Phd Student

University of Groningen

PhD Thesis: Novel fluorescent probes and analysis methods for single-molecule and single-cell microscopy.

2010–2012

MSc Nanoscience

University of Groningen

Master Thesis: Organometallic Catalysis as seen by single molecule spectroscopy.

2007–2010

BSc Physics

University of Groningen

Bachelor Thesis: Synthesis of PTCDA derivatives and application of organic semiconductors in transistors. (shared thesis)

2006–2011

BSc Chemistry

University of Groningen

Bachelor Thesis: Synthesis of PTCDA derivatives and application of organic semiconductors in transistors. (shared thesis)

Publications

2019

J. H. Smit, *ColiCoords: A Python package for analysis of rod-shaped single-cell fluorescence microscopy data in Jupyter notebooks*. PLOS ONE **14**, e0217524

2019

J. H. Smit, J. H. M. van der Velde, J. Huang, V. Trauschke, S. Hendrikus, S. Chen, N. Eleftheriadis, E. M. Warszawik, C.M. Punter, A. Herrmann, T. Cordes, *On the impact of competing intra- and inter-molecular triplet-state quenching on photobleaching and photoswitching kinetics of organic fluorophores*. PCCP, **21**, 3721-3733

2018

J. H. M. van der Velde*, **J. H. Smit***, C.M. Punter, T. Cordes, *Self-healing dyes for super-resolution microscopy*. J. Phys. D: Appl. Phys., **52**, 034001

2018

E. M. Warszawik, **J. H. Smit**, Y. Li, M. Loznik, A. Paul, T. Cordes, A. Herrmann, *Uptake and Localization of Aminoglycoside Antibiotics in Live Escherichia Coli*. Biophysical Journal **114** (3), 629a

- 2017** J. Kim*, **J. H. Smit***, D. K. Prusty, A. J. Musser, N. Tombros, P. C. W. Lee, A. Herrmann, M. Kwak, *Ultrasensitive Detection of Oligonucleotides: Single-Walled Carbon Nanotube Transistor Assembled by DNA Block Copolymer*. *Journal of Nanoscience and Nanotechnology*, **17** (8), 5175-5180
- 2016** J. H. M. van der Velde, J. Oelerich, J. Huang, **J. H. Smit**, A. A. Jazi, S. Galiani, K.I Kolmakov, G. Guoridis, C. Eggeling, A. Herrmann, G. Roelfes, T. Cordes, *A simple and versatile design concept for fluorophore derivatives with intramolecular photostabilization*. *Nature Communications*, **7**, 10144
- 2014** J. H. M. van der Velde, J. Oelerich, J. Huang, **J. H. Smit**, M. Hirmaier, E. Ploetz, A. Herrmann, G. Roelfes, T. Cordes, *The power of two: covalent coupling of photostabilizers for fluorescence applications*. *JPC Letters*, **5** (21), 3792-3798
- 2012** I. Stein, S. Capone, **J.H. Smit**, F. Baumann, T. Cordes, P. Tinnefeld, *Linking Single-Molecule Blinking to Chromophore Structure and Redox Potentials*. *ChemPhysChem*, **13**, 931-937

Research Experience

- 2013** **Research Assistant** *LMU Munich*
Supervisor: Prof. Dr. Wolfgang Zinth
Keywords: *Ultrafast Spectroscopy, Streak Camera, Time-resolved Fluorescence, Non-linear Optics*
- 2012** **Research Assistant** *University of Groningen*
Supervisor: Prof. Dr. T. Cordes
Keywords: *Single-molecule Chemistry, Fluorescence Microscopy, Organopalladium Chemistry*
- 2011** **Internship** *LMU Munich*
Supervisor: Prof. Dr. P. Tinnefeld
Keywords: *Confocal Microscopy, Photophysics, Single-molecule Studies, Redox Chemistry*
- 2011** **Internship** *University of Groningen*
Supervisor: Prof. Dr. A. Herrmann
Keywords: *Graphene, Carbon Nanotubes, Organic Electronics, DNA Hybrid Materials, DNA Synthesis*

Teaching

- 2015–2016** **T.A. Thermodynamics** *University of Groningen*
Teaching of exercise classes Thermodynamics for 1st year physics students

Conferences

- 2018** **Bacterial Protein Export** *Leuven*
Poster Presentation: *Uptake and Localization of Aminoglycoside Antibiotics in Live Escherichia Coli*
- 2018** **PicoQuant Workshop** *Berlin*
Oral Presentation: *Inter – vs intramolecular photostabilization of organic fluorophores*

- 2018** **84th Harden Conference: Single-molecule bacteriology** *Oxford*
 Oral Presentation: *Uptake and Localization of Aminoglycoside Antibiotics in Live Escherichia Coli*
- 2017** **Zernike Institute for Advanced Materials meeting** *Vlieland*
 Oral Presentation: *Inter- vs Intramolecular photostabilization of organic fluorophores*
- 2016** **Dutch BioPhysics** *Veldhoven*
 Poster Presentation: *Design of photostabilizer-dye conjugates and applications in super-resolution microscopy*
- 2015** **PicoQuant Workshop** *Berlin*
 Poster Presentation: *The Power of Two: Covalent Coupling of Photostabilizers for Fluorescence Applications*
- 2015** **Focus on Microscopy** *Goettingen*
 Oral Presentation: *A Simple And Versatile Synthesis Strategy For Intramolecular Photostabilization of Organic Fluorophores*

Fellowships and awards

- 2018** **FEMS**
 Fellowship for attending BPE2018 conference
- 2010–2012** **Zernike Insitute for Advanced Materials**
 Fellowship for TopMaster programme in Nanoscience

Professional Affiliations

Member of the following societies:

- Deutsche Physikalische Gesellschaft
- Nederlandse Natuurkunde Vereniging
- Biochemical Society
- Koninklijke Nederlandse Vereniging voor Microbiologie