

# DR. NICOLASRENAUD

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## PREVIOUS POSITIONS

- Jan. 2013** **Post Doctoral Fellow,**  
**Current** Delft University of Technology,  
Department of Chemical Engineering  
Optoelectronic Material Group.
- Area of Focus *singlet fission in organic crystals, photoinduced charge transfer in molecular systems, optoelectronic properties of advanced materials such as perovskites, semiconductor nanostructures and metal-organic frameworks*
- Advisor Dr. Ferdinand C. Grozema
- Jan. 2010** **Post Doctoral Fellow,**  
**Dec. 2012** Northwestern University,  
Department of Chemistry &  
Non-Equilibrium Energy Research Center.
- Area of Focus *energy and charge transfer in bio-molecules, molecular electronics, multidimensional spectroscopy, mechanical properties of complex molecules*
- Advisor Prof. Mark A. Ratner

## EDUCATION

- 2006 – 2009** **PhD in Nanoscience,** Université Paul Sabatier, Toulouse, France.  
Obtained with the felicitation of the committee
- Thesis *Quantum Hamiltonian Computer: toward a symbolic analysis of quantum circuits*
- Supervisor Dr. Christian Joachim
- 2004 – 2006** **M.Sc. in Physics, Nano-Physics,** Université Paul Sabatier, Toulouse, France.  
Scored 17.2/20, ranked #2
- Thesis *Quantum Hamiltonian Computer*
- Supervisor Dr. Christian Joachim
- 2000 – 2004** **B.Sc. in Fundamental Physics,** Université Paul Sabatier, Toulouse, France.
- Thesis *Parallel Kinetic Monte Carlo, application to epitaxial growth*
- Supervisor Prof. Nicolas Combe

## SHORT TERM RESEARCH VISITS

- April. 2011** **McGill University, Montreal Canada,** Department of Physics.
- Area of Focus *Ab-initio techniques for electronic transport at the nanoscale*
- Advisor Prof. Hong Guo
- Feb. 2011** **Hebrew University, Jerusalem, Israel,** Department of Chemistry.
- Area of Focus *Numerical techniques for dissipative wave packet dynamics*
- Advisor Prof. Ronnie Kosloff
- March 2010** **JNCASR Institute, Bangalore, India,** Theoretical Sciences Unit.
- Area of Focus *Charge transport in strongly correlated materials*
- Advisor Prof. Swapan K. Pati

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## TEACHING ACTIVITIES

**2015 – 2016** **Lecturer**, Delft University of Technology, Delft, The Netherlands.  
Numerical Techniques for Chemical Engineering  
Creation of a new programming course in Python for undergraduate students  
14 hours of lecture and 28 hours of practicals  
*Nominated for the Teacher of the Year Award for this course*

**Jan. 2013** **Invited Lecturer**, Physics Winter School, les Houches, France.  
Quantum Resources and Molecule-machines  
6 hours of lecture for graduate and post graduate students

**2006 – 2009** **Teaching Assistant**,  
Université Paul Sabatier, Toulouse, France.  
Practicals of classical and modern optics to Bachelor students  
Practicals of classical and quantum mechanics to Bachelor students  
Practicals of visual programming (labView) to Master students  
Lectures and practicals of programming (UNIX - C) to Bachelor students

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## SUPERVISION OF STUDENTS

**2013 – current** **Supervision of Post Doctoral, PhD and Master Students**,  
Delft University of Technology, Delft, The Netherlands.  
Fatemeh Mirjani, Post Doc., *Theory of Singlet Fission in Molecular Crystal*  
Sudeep Maeshwari, PhD Student, *Theoretical Description of Perovskites*  
Yaroslav Aulin, PhD Student, *Singlet Fission in Molecular Crystal*  
Nathalie Grozac, PhD Student, *Photoinduced charge transfer in DBA molecule*  
Magnus Frederiksen, Master Student, *Theoretical Description of Perovskites*

**2013 – Current** **Project Supervisor of Bachelor Students**,  
Delft University of Technology, Delft, The Netherlands.  
Vincent Jansen, Bachelor Student, *Molecular Dynamics Simulations of Perovskites*  
Nienke vd Meijden, Bachelor Student, *Electronic Structure Calculations of Quantum Dots*  
Robin Buitendijk, Bachelor Student, *Electronic Structure Calculations of Quantum Dots*  
Hugo Montfort, Bachelor Student, *Optical Properties of Metal-Organic-Frameworks*  
Dennis Alders, Bachelor Student, *Optical Properties of Metal-Organic-Frameworks*

**2010 – 2014** **Supervision of Undergraduate and Graduate Students**,  
Northwestern University, Evanston, Illinois, USA.  
Daniel Powell, Graduate student, *Charge transfer in biomimetic molecules*  
Bryan Lau, Graduate Student, *Non-Adiabatic wave-packet propagation*  
Jason Hutchinson, Undergraduate Student, *Charge transport in single molecule junctions*

**2008 – 2009** **Supervision of PhD Student**,  
CEMES-CNRS, Toulouse, France.  
Mathilde Portais, Master Student, *Level Repulsion and Boolean Algebra*