

Jakob Rosenkrantz de Lassen

Ph.D. and Research Engineer

— Curriculum Vitae

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* July 24 1986, Odense, Denmark



Experience

2016– **Research Engineer**
TICRA, Copenhagen, Denmark

- Consulting on RF analysis and design of antennas for space applications.
- R&D projects under ESA contracts.
- Software development and maintenance project management.
- Scientific publishing and presentations.

2012–2015 **Ph.D. Researcher in Nanophotonics**
DTU FOTONIK, TECHNICAL UNIVERSITY OF DENMARK (DTU), Kgs. Lyngby, Denmark

- Theoretical studies and mathematical modeling of light emission and propagation in open nanophotonic systems.
- Emphasis on photonic crystals, light-matter interactions, slow light, coupled cavity-waveguide structures, and plasmonic nanostructures.
- Development of computational techniques and software (MATLAB).
- Publishing (seven peer-reviewed journal articles + nine peer-reviewed conference contributions) and presentations (four international conferences).
- Guest lecturing (B.Sc.) and student project supervision (B.Sc./M.Sc.).

2009–2013 **Teaching Assistant**
TECHNICAL UNIVERSITY OF DENMARK (DTU), Kgs. Lyngby, Denmark

- Nanophotonics (M.Sc.)
- Thermodynamics and Statistical Physics (B.Sc.)
- Advanced Engineering Mathematics 1 (B.Sc.)
- Partial Differential Equations – Applied Mathematics (B.Sc./M.Sc.)
- Introductory Programming with MATLAB (B.Sc.)
- Introduction to Numerical Algorithms (B.Sc.)

Education

2012–2015 **Ph.D. in Nanophotonics**
DTU FOTONIK, TECHNICAL UNIVERSITY OF DENMARK (DTU), Kgs. Lyngby, Denmark
Ph.D. thesis: "Modeling and Simulations of Light Emission and Propagation in Open Nanophotonic Systems"
Supervisors: Assoc. Prof. Niels Gregersen, Prof. Jesper Mørk, and Dr. Philip T. Kristensen

2010–2012 **M.Sc.Eng. in Physics and Nanotechnology**
TECHNICAL UNIVERSITY OF DENMARK (DTU), Kgs. Lyngby, Denmark
M.Sc. thesis: "Electromagnetic Scattering in Micro- and Nanostructured Materials"
Enrolled in DTU's Honors Program

2007–2010 **B.Sc.Eng. in Physics and Nanotechnology**
TECHNICAL UNIVERSITY OF DENMARK (DTU), Kgs. Lyngby, Denmark
B.Sc. thesis: "Optical Simulations in an Open Geometry Using the Eigenmode Expansion Technique"

2003–2006 **General Certificate of Secondary Education**
SCT. KNUDS GYMNASIUM, Odense, Denmark

Voluntary Activities

- 2012– **Blogger at ing.dk** Blogging at "Forskningsingeniøren".
- 2014–2015 **Reviewer** Peer review for the journals Optics Express, JOSA A, and Applied Optics.
- 2014–2017 **Presenter at Forskningens Døgn** Popular scientific presentations of nanophotonics and space missions.
- 2011 **Mentor** For three third-year high school students as part of "Akademiet for talentfulde unge".

Stays Abroad

- 2015 **External Research Stay** (Group of Prof. Eli Kapon)
ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE, Lausanne, Switzerland
- 2013 **Summer School**
ÉCOLE DE PHYSIQUE DES HOUCHES, Les Houches, France
- 2011 **Summer School**
INSTITUT POLYTECHNIQUE DE GRENOBLE, Grenoble, France
- 2010 **Exchange**
UNIVERSITY OF MARYLAND, College Park, Maryland, USA
- 2002–2003 **Study Abroad**
LYCÉE INTERNATIONAL, Saint-Germain-en-Laye, France

Languages

Danish	Native
English	Fluent
French	Excellent
Spanish	Basic
German	Basic
Swedish	Basic

Publications

Books

2. C. McMaster, C. Murphy, and J. R. de Lasson (editors)
"The Nordic PhD: Surviving and Succeeding"
Peter Lang Inc., International Academic Publishers (2018)
1. J. R. de Lasson
"Writing the PhD Thesis: Planning, Getting Started and Getting Done"
Chapter 5 in "The Nordic PhD: Surviving and Succeeding"
Peter Lang Inc., International Academic Publishers (2018)

Journal Articles

12. J. R. de Lasson, L. H. Frandsen, P. Gutsche, S. Burger, O. S. Kim, O. Breinbjerg, A. Ivinskaya, F. Wang, O. Sigmund, T. Häyrynen, A. Lavrinenko, J. Mørk, and N. Gregersen
"Benchmarking five numerical simulation techniques for computing resonance wavelengths and quality factors in photonic crystal membrane line defect cavities"
Opt. Express **26**, 11366-11392 (2018)
11. P. T. Kristensen, J. R. de Lasson, M. Heuck, N. Gregersen, and J. Mørk
"On the Theory of Coupled Modes in Optical Cavity-Waveguide Structures"
J. Lightwave Technol. **35**, 4247-4259 (2017)
10. T. Häyrynen, A. D. Osterkryger, J. R. de Lasson, and N. Gregersen
"Modeling open nanophotonic systems using the Fourier modal method: generalization to 3D Cartesian coordinates"
J. Opt. Soc. Am. A **34**, 1632-1641 (2017)
9. T. Häyrynen, J. R. de Lasson, and N. Gregersen
"Open-geometry Fourier modal method: modeling nanophotonic structures in infinite domains"
J. Opt. Soc. Am. A **33**, 1298-1306 (2016)
8. A. D. Osterkryger, J. R. de Lasson, M. Heuck, Y. Yu, J. Mørk, and N. Gregersen

- "Spectral symmetry of Fano resonances in a waveguide coupled to a microcavity"
Opt. Lett. **41**, 2065-2068 (2016)
7. J. R. de Lasson, P. T. Kristensen, J. Mørk, and N. Gregersen
"Semianalytical quasi-normal mode theory for the local density of states in coupled photonic crystal cavity-waveguide structures"
Opt. Lett. **40**, 5790-5793 (2015)
 6. Y. Chen, J. R. de Lasson, N. Gregersen, and J. Mørk
"Impact of slow-light enhancement on optical propagation in active semiconductor photonic-crystal waveguides"
Phys. Rev. A **92**, 053839 (2015)
 5. P. T. Kristensen, J. R. de Lasson, and N. Gregersen
"Calculation, normalization, and perturbation of quasinormal modes in coupled cavity-waveguide systems"
Opt. Lett. **39**, 6359-6362 (2014)
 4. J. R. de Lasson, P. T. Kristensen, J. Mørk, and N. Gregersen
"Roundtrip matrix method for calculating the leaky resonant modes of open nanophotonic structures"
J. Opt. Soc. Am. A **31**, 2142-2151 (2014)
 3. S. Kadhodazadeh, J. R. de Lasson, M. Beleggia, H. Kneipp, J. B. Wagner, and K. Kneipp
"Scaling of the Surface Plasmon Resonance in Gold and Silver Dimers Probed by EELS"
J. Phys. Chem. C **118**, 5478-5485 (2014)
 2. J. R. de Lasson, J. Mørk, and P. T. Kristensen
"Three-dimensional integral equation approach to light scattering, extinction cross sections, local density of states, and quasi-normal modes"
J. Opt. Soc. Am. B **30**, 1996-2007 (2013)
 1. J. R. de Lasson, T. Christensen, J. Mørk, and N. Gregersen
"Modeling of cavities using the analytic modal method and an open geometry formalism"
J. Opt. Soc. Am. A **29**, 1237-1246 (2012)

Conference Contributions

32. C. Cappellin, J. R. de Lasson, K. Pontoppidan, and N. Skou
"Multi-Feed-Per-Beam Antenna Concept for High-Performance Passive Microwave Radiometers"
39th ESA Antenna Workshop (2018)
31. L. Datashvili, N. Maghaldadze, M. Friemel, T. Luo, L. da Rocha-Schmidt, C. Cappellin, J. R. de Lasson, R. Jørgensen, J.-C. Angevain, A. Ihle, and L. Salghetti Drioli
"Large Deployable Reflectors: Enhancing the Mesh Reflector RF Performances"
3rd International Conference "Advanced Lightweight Structures and Reflector Antennas" (2018)
30. J. R. de Lasson, C. Cappellin, K. Pontoppidan, O. Iupikov, M. Ivashina, N. Skou, and B. Fiorelli
"Innovative Multi-Feed-Per-Beam Reflector Antenna for Space-Borne Conical-Scan Radiometers"
AP-S/URSI Conference (2018)
29. R. Malureanu, J. R. de Lasson, L. H. Frandsen, P. Gutsche, S. Burger, O. S. Kim, O. Breinbjerg, A. Ivinskaya, F. Wang, O. Sigmund, T. Häyrynen, A. Lavrinenko, J. Mørk, and N. Gregersen
"Which Computational Methods Are Good for Analyzing Large Photonic Crystal Membrane Cavities?"
International Conference on Transparent Optical Networks (ICTON) (2018)
28. N. Gregersen, J. R. de Lasson, L. H. Frandsen, P. Gutsche, S. Burger, O. S. Kim, O. Breinbjerg, A. Ivinskaya, F. Wang, O. Sigmund, T. Häyrynen, and A. Lavrinenko
"Benchmarking state-of-the-art numerical simulation techniques for analyzing large photonic crystal membrane line defect cavities"
Proc. SPIE **10672**, 106721C (2018)
27. N. Gregersen, J. R. de Lasson, L. H. Frandsen, O. S. Kim, O. Breinbjerg, F. Wang, O. Sigmund, A. Ivinskaya, A. Lavrinenko, P. Gutsche, S. Burger, T. Häyrynen, and J. Mørk,
"Benchmarking state-of-the-art optical simulation methods for analyzing large nanophotonic structures"
International Workshop on Optical Wave & Waveguide Theory and Numerical Modelling (OWTNM) (2018)
26. J. R. de Lasson, M. Zhou, and C. Cappellin
"Large Deployable Antennas Benchmark for Contoured Beam Mission in C Band"

- European Conference on Antennas and Propagation (EuCAP) (2018)
25. C. Cappellin, J. R. de Lasson, O. Iupikov, M. Ivashina, N. Skou, K. Pontoppidan, and B. Fiorelli
"Feed Array Breadboard for Future Passive Microwave Radiometer Antennas"
European Conference on Antennas and Propagation (EuCAP) (2018)
 24. N. Skou, S. S. Søjbjerg, S. S. Kristensen, C. Cappellin, K. Pontoppidan, J. R. de Lasson, M. Ivashina, and O. Iupikov
"Ultra-High Performance C & L-Band Radiometer System for Future Spaceborne Ocean Missions"
15th MicroRad (2018)
 23. C. Cappellin, J. R. de Lasson, O. Iupikov, M. Ivashina, N. Skou, K. Pontoppidan, and B. Fiorelli
"Focal plane array breadboard for advanced multiple beam Radiometer antennas"
38th ESA Antenna Workshop (2017)
 22. D. Marote, M. Bergadà, G. Amazes, P. Robustillo, J. R. de Lasson, C. Cappellin, and U. Klein
"Correlation approach for testing and simulation of MetOp-SG Ice Cloud Imager full structure, 183 to 664 GHz"
38th ESA Antenna Workshop (2017)
 21. N. Gregersen, J. R. de Lasson, L. H. Frandsen, T. Häyrynen, A. Lavrinenko, J. Mørk, O. S. Kim, O. Breinbjerg, F. Wang, O. Sigmund, A. Ivinskaya, P. Gutsche, and S. Burger
"Benchmarking five computational methods for analyzing large photonic crystal membrane cavities"
International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD) (2017)
 20. J. R. de Lasson, C. Cappellin, R. Jørgensen, L. Datashvili, and J. C. Angevain
"Advanced Techniques for Grating Lobe Reduction for Large Deployable Mesh Reflector Antennas"
AP-S/URSI Conference (2017)
 19. M. Zhou, S. B. Sørensen, J. R. de Lasson, N. Vesterdal, R. Jørgensen, E. Jørgensen, and G. Toso
"Advances on High-Performance Curved Reflectarrays for Telecommunication Applications"
AP-S/URSI Conference (2017)
 18. A. Novitsky, J. R. de Lasson, L. H. Frandsen, P. Gutsche, S. Burger, O. S. Kim, O. Breinbjerg, A. Ivinskaya, F. Wang, O. Sigmund, T. Häyrynen, A. Lavrinenko, J. Mørk, and N. Gregersen
"Comparison of five computational methods for computing Q factors in photonic crystal membrane cavities"
International Conference on Transparent Optical Networks (ICTON) (2017)
 17. N. Gregersen, J. R. de Lasson, L. H. Frandsen, O. S. Kim, O. Breinbjerg, F. Wang, O. Sigmund, A. Ivinskaya, A. Lavrinenko, P. Gutsche, S. Burger, T. Häyrynen, and J. Mørk
"Comparison of Five Numerical Methods for Computing Quality Factors and Resonance Wavelengths in Photonic Crystal Membrane Cavities"
CLEO Europe (2017)
 16. A. D. Osterkryger, T. Häyrynen, J. R. de Lasson, and N. Gregersen
"Modelling open nanophotonic structures using the Fourier modal method in infinite domains"
CLEO Europe (2017)
 15. A. D. Osterkryger, T. Häyrynen, J. R. de Lasson, and N. Gregersen
"Modelling open nanophotonic structures using the Fourier modal method in infinite domains"
International Workshop on Optical Wave & Waveguide Theory and Numerical Modelling (OWTNM) (2017)
 14. J. R. de Lasson, P. H. Nielsen, C. Cappellin, D. M. Alvarez, M. Bergada, R. Gonzalez, and P. de Maagt
"Full-Wave and Multi-GTD Analysis of the Ice Cloud Imager for MetOp-SG"
European Conference on Antennas and Propagation (EuCAP) (2017)
 13. C. Cappellin, J. R. de Lasson, R. Jørgensen, L. Datashvili, J. Pauw, N. Maghaldadze, M. Migliorelli, and J. C. Angevain
"Large Mesh Reflectors with Improved Pattern Performances"
37th ESA Antenna Workshop (2016)
 12. P. T. Kristensen, J. R. de Lasson, N. Gregersen, and J. Mørk

- "A modal approach to light emission and propagation in coupled cavity waveguide systems"
META'16 (2016)
11. B. Rigal, J. R. de Lasson, C. Jarlov, B. Dwir, A. Rudra, A. Lyasota, I. Kulkova, N. Gregersen, J. Mørk, and E. Kapon
"Site-controlled quantum dots coupled to photonic crystal waveguides"
META'16 (2016)
 10. J. R. de Lasson, L. H. Frandsen, S. Burger, P. Gutsche, O. S. Kim, O. Breinbjerg, O. Sigmund, J. Mørk, and N. Gregersen
"Comparison of four computational methods for computing Q factors and resonance wavelengths in photonic crystal membrane cavities"
META'16 (2016)
 9. J. R. de Lasson, B. Rigal, E. Kapon, J. Mørk, and N. Gregersen
"Design of Slow and Fast Light Photonic Crystal Waveguides for Single-photon Emission Using a Bloch Mode Expansion Technique"
Progress In Electromagnetics Research Symposium (PIERS) (2015)
 8. N. Gregersen, J. R. de Lasson, and J. Mørk
Invited: "Design and simulations of highly efficient single-photon sources"
Progress In Electromagnetics Research Symposium (PIERS) (2015)
 7. A. D. Osterkryger, J. R. de Lasson, Y. Yu, J. Mørk, and N. Gregersen
"Investigations on the parity of Fano resonances in photonic crystals"
CLEO Europe (2015)
 6. J. R. de Lasson, P. T. Kristensen, J. Mørk, and N. Gregersen
"A Bloch mode expansion approach for analyzing quasi-normal modes in open nanophotonic structures"
META'14 (2014)
 5. J. R. de Lasson, P. T. Kristensen, J. Mørk, and N. Gregersen
"A Bloch modal approach for engineering waveguide and cavity modes in two-dimensional photonic crystals"
Proc. SPIE **9127**, 91270F (2014)
 4. S. Kadkhodazadeh, J. R. de Lasson, H. Kneipp, J. B. Wagner, and K. Kneipp
"Calibrating Au and Ag plasmonic rulers with EELS"
Electron Microscopy and Analysis Group Conference 2013
 3. S. Kadkhodazadeh, J. R. de Lasson, S. Raza, P. T. Kristensen, J. Mørk, J. B. Wagner, and K. Kneipp
"Probing plasmon resonance's dependence on gap size in silver dimers by EELS"
Scandem 2013 – Annual Meeting of the Nordic Microscopy Society (2013)
 2. S. Kadkhodazadeh, J. R. de Lasson, S. Raza, P. T. Kristensen, J. Mørk, J. B. Wagner, and K. Kneipp
"Probing plasmon resonance's dependence on gap size in silver dimers by EELS"
International Electron Energy Loss Spectroscopy Meeting on Enhanced Data Generated by Electrons (2013)
 1. J. R. de Lasson, P. T. Kristensen, and J. Mørk
"Multiple-scattering formalism beyond the quasistatic approximation: Analyzing resonances in plasmonic chains"
AIP Conf. Proc. **1475**, 158–160 (2012)