

Jonas Schou Neergaard-Nielsen



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Born: 11. March 1980 in Frederikssund, Denmark

Education

- 2008 **PhD in Physics**
Niels Bohr Institute, University of Copenhagen
ADVISOR: Eugene Polzik
THESIS: *Generation of single photons and Schrödinger kitten states of light* [PDF]
- 2005 **MSc in Physics**
University of Copenhagen
ADVISOR: Eugene Polzik
THESIS: *Nonclassical light source for quantum networks* [PDF]
- 2002 **BSc in Physics and Mathematics**
University of Copenhagen
- 1999 **High school exam**
Frederiksværk Gymnasium

Employment

- 2011— **Technical University of Denmark**
Postdoctoral Researcher
Quantum Physics and Information Technology, Department of Physics
- 2008—2011 **National Institute of Information and Communications Technology, Tokyo**
Limited Term Researcher (postdoc)
Quantum ICT Group, New Generation Network Research Center
- 2008 **Niels Bohr Institute, University of Copenhagen**
Research Assistant
Quantum Optics lab, Quantop

Grants & awards

- 2012 Equipment grant 50.000 DKK, *Direktør, Dr. Techn. A.N. Neergaard og Hustrus Fond*
- 2012 Sapere Aude: DFF–Ung Eliteforsker, *The Danish Research Council | Natural Sciences (FNU)*
- 2011 DFF–Individual postdoctoral grant, *The Danish Research Council | Natural Sciences (FNU)*
- 2011 NICT Excellent Research prize, *NICT, Tokyo*

Publications & talks

JOURNAL ARTICLES

- 2013 J. S. Neergaard-Nielsen, Y. Eto, C.-W. Lee, H. Jeong & M. Sasaki, *Quantum tele-amplification with a continuous-variable superposition state*, [Nature Photonics](#) **7**, 439–443.
- 2013 A. Laghaout, J. S. Neergaard-Nielsen, I. Rigas, C. Kragh, A. Tipsmark & U. L. Andersen, *Amplification of realistic Schrödinger-cat-state-like states by homodyne heralding*, [Physical Review A](#) **87**, 043826.
- 2013 A. Tipsmark, J. S. Neergaard-Nielsen & U. L. Andersen, *Displacement-enhanced entanglement distillation of single-mode-squeezed entangled states*, [Optics Express](#) **21**, 6670–6680.
- 2012 E. Kot, N. Grønbech-Jensen, B. Melholt Nielsen, J. S. Neergaard-Nielsen, E. S. Polzik & A. S. Sørensen, *Breakdown of the classical description of a local system*, [Physical Review Letters](#) **108**, 233601.
- 2011 J. S. Neergaard-Nielsen, M. Takeuchi, K. Wakui, H. Takahashi, K. Hayasaka, M. Takeoka & M. Sasaki, *Photon subtraction from traveling fields - recent experimental demonstrations*, [Progress in Informatics](#) **8**, 5–18.
- 2011 M. Takeoka, J. S. Neergaard-Nielsen, M. Takeuchi, K. Wakui, H. Takahashi, K. Hayasaka & M. Sasaki, *Engineering of optical continuous-variable qubits via displaced photon subtraction: multimode analysis*, [Journal of Modern Optics](#) **58**, 266–275.
- 2010 J. S. Neergaard-Nielsen, M. Takeuchi, K. Wakui, H. Takahashi, K. Hayasaka, M. Takeoka & M. Sasaki, *Optical continuous-variable qubit*, [Physical Review Letters](#) **105**, 053602.
- 2010 H. Takahashi, J. S. Neergaard-Nielsen, M. Takeuchi, M. Takeoka, K. Hayasaka, A. Furusawa & M. Sasaki, *Entanglement distillation from Gaussian input states*, [Nature Photonics](#) **4**, 178–181.
- 2009 B. Melholt Nielsen, J. S. Neergaard-Nielsen & E. S. Polzik, *Time gating of heralded single photons for atomic memories*, [Optics Letters](#) **34**, 3872–3874.
- 2007 J. S. Neergaard-Nielsen, B. Melholt Nielsen, H. Takahashi, A. I. Vistnes & E. S. Polzik, *High purity bright single photon source*, [Optics Express](#) **15**, 7940–7949.
- 2006 N. Takei, N. Lee, D. Moriyama, J. S. Neergaard-Nielsen & A. Furusawa, *Time-gated Einstein-Podolsky-Rosen correlation*, [Physical Review A](#) **74**, 060101(R).
- 2006 J. S. Neergaard-Nielsen, B. Melholt Nielsen, C. Hettich, K. Mølmer & E. S. Polzik, *Generation of a superposition of odd photon number states for quantum information networks*, [Physical Review Letters](#) **97**, 083604.

CONFERENCE PROCEEDINGS

- 2011 J. S. Neergaard-Nielsen, M. Takeuchi, K. Wakui, H. Takahashi, K. Hayasaka, M. Takeoka & M. Sasaki, *Continuous variable qubit state engineering*, [Proceedings of the 10th Int. Conf. on QCMC 2010](#), pp. 223–226, Eds. T. Ralph and P. K. Lam.
- 2008 H. Krauter, J. Sherson, K. Jensen, T. Fernholz, D. Oblak, P. J. Windpassinger, N. Kjærgaard, J. Neergaard-Nielsen, B. Melholt Nielsen, A. Hilliard, C. Olausson, J. H. Müller & E. S. Polzik, *Quantum interface between light and atomic ensembles*, Laser Spectroscopy. Proceedings of the XVIII ICOLS 2007, Eds. L. Hollberg, J. Bergquist, M. Kasevich, World Scientific.
- 2007 J. S. Neergaard-Nielsen, B. Melholt Nielsen, C. Hettich, H. Takahashi, A. I. Vistnes & E. S. Polzik, *Narrow bandwidth optical Schrödinger kitten states and single photons*, Proceedings of the 8th Int. Conf. on QCMC 2006, Eds. O. Hirota, J. H. Shapiro, and M. Sasaki.

OTHER ARTICLES

- 2013 J. S. Neergaard-Nielsen, *Two become one*, [Nature Photonics](#) **7**, 512–513 (News & Views).
- 2010 J. S. Neergaard-Nielsen, M. Takeuchi, K. Wakui, H. Takahashi, K. Hayasaka, M. Takeoka, and M. Sasaki, *Bridging discrete and continuous variables in quantum information*, [Optics and Photonics News](#) **21**, p. 46 (“Optics in 2010” special issue, on the front cover).

International experience

- 2011 One month stay at University of Queensland, Brisbane, Australia.
- 2008–2011 3 years as a post doc at NICT, Tokyo, Japan.
- 2006 3 months as visiting PhD student at University of Tokyo, Japan.

Activities

Refereeing for the journals *Nature Photonics*, *Optics Express*, *Journal of the Optical Society of America B*, *Optics Communications*, *Science China*.