

## Publication list

### Daniel Ljunggren

Flisbacken 1, 192 51 Sollentuna • Sweden • Mobile: +46 (0) 70 611 6051 • Email: daniel@kth.se

*Titles are hyperlinked in electronic format.*

#### Research interests

Photonic quantum information technologies and quantum optics. Experimental work on quantum light sources by light-matter interactions in exotic nonlinear optical media, entangled photon-pair correlations and statistics, sources of single-photons by single atoms via cavity quantum electrodynamics, and quantum memories by electromagnetically induced transparency.

#### Peer-reviewed articles

1. P. Nisbet-Jones, J. Dille, **D. Ljunggren**, A. Kuhn, [Highly efficient source for indistinguishable single photons of controlled shape](#), New J. of Phys. **13**, 103036 (2011).
2. G. Vasilev, **D. Ljunggren**, A. Kuhn, [Single photons made-to-measure](#), New J. of Phys. **12**, 063024 (2010).
3. A. Kuhn, **D. Ljunggren**, [Cavity-based single-photon sources](#), invited review article, Contemporary Physics, **51**, 289-313 (2010).
4. S. Sauge, M. Swillo, S. Albert-Seifried, G. B. Xavier, J. Waldebäck, M. Tengner, **D. Ljunggren**, A. Karlsson, [Narrowband polarization-entangled photon pairs distributed over a WDM link for qubit networks](#), Opt. Express **15**, 6926-6933 (2007).
5. **D. Ljunggren**, M. Tengner, P. Marsden, and M. Pelton, [Theory and experiment of entanglement in a quasi-phase-matched two-crystal source](#), Phys. Rev. A **73**, 032326 (2006).
6. **D. Ljunggren** and M. Tengner, [Optimal focusing for maximal collection of entangled narrow-band photon pairs into single-mode fibers](#), Phys. Rev. A **72**, 062301 (2005).
7. M. Pelton, P. Marsden, **D. Ljunggren**, M. Tengner, A. Karlsson, A. Fragemann, C. Canalias, F. Laurell, [Bright, single-spatial-mode source of frequency non-degenerate, polarization-entangled photon pairs using periodically poled KTP](#), Opt. Express **12**, 3573 (2004).
8. **D. Ljunggren**, M. Bourennane and A. Karlsson, [Authority-based user authentication in quantum key distribution](#), Phys. Rev. A **62**, 022305 (2000).
9. M. Bourennane, **D. Ljunggren**, A. Karlsson, P. Jonsson, A. Hening and J. Peña Císcar, [Experimental long wavelength quantum cryptography: from single-photon transmission to key extraction protocols](#), J. Mod. Opt. **47**, 563-579 (2000).
10. M. Bourennane, F. Gibson, A. Karlsson, A. Hening, P. Jonsson, T. Tsegaye, **D. Ljunggren** and E. Sundberg, [Experiments on long wavelength \(1550 nm\) "plug and play" quantum cryptography systems](#), Opt. Express **4**, 383-387 (1999).

#### Articles in preparation or archived online

11. **D. Ljunggren**, M. Tengner, [On the photon statistics of heralded single-photon sources](#), manuscript.
12. M. Tengner and **D. Ljunggren**, [Characterization of an asynchronous source of heralded single photons generated at a wavelength of 1550 nm](#), arXiv:0706.2985v1 [quant-ph] (2007).

**Peer-reviewed conference contributions (proceedings papers<sup>(†)</sup>, talks<sup>(\*)</sup>, posters)**

<sup>†</sup>\*12–39. Total of 28 conference contributions from 1999 to present.

**Overview articles**

**Book chapters, books, etc.**

- <sup>†</sup>41. **D. Ljunggren**, M. Tengner, M. Pelton, and P. Marsden, *A source of entangled photon-pairs: optimizing emission in two quasi-phasematched crystals*, Quantum Communication, Measurement and Computing 5, eds. Barnett *et al.* AIP Conf. Proc. **734**, 354, (Melville, New York 2004). ISBN: 0-7354-0216-7
- <sup>†</sup>42. **D. Ljunggren**, M. Bourennane and A. Karlsson, *Authority-based user authentication and quantum key distribution*, Quantum Communication, Computing, and Measurement 3, eds. P. Tombesi and O. Hirota, 299-302 (Plenum, New York, 2001). ISBN: 0-306-46609-0
- \*43. **D. Ljunggren**, *Entanglement in quantum communication: preparation and characterization of photonic qubits*. Ph.D. thesis, Royal Institute of Technology (Feb. 2006). ISBN: 91-7178-254-0
- 44. **D. Ljunggren**, *Protocols in quantum cryptography systems: implementation of software for secret key extraction*. M.Sc. thesis, Royal Institute of Technology (1999).

**Publicly available computer programs**

The following software is developed by the applicant and available upon request.

- Software for Quantum Cryptography Key Extraction.
- Software for Emission Modelling in Spontaneous Parametric Downconversion.

**Popular-scientific articles/presentations**

- 45. A. Karlsson **D. Ljunggren**, and M. Tengner, *Twin-photon sources for quantum information applications*, in Quantum Information Processing and Communication in Europe, Information Society Technologies FET, EU (2005).

2002 – 2005      Contribution to popular scientific coverage on Swedish national television; Nova, Aktuellt, Vetenskap.

**Other presentations**

- \*46. **D. Ljunggren**, *Photon statistics of heralded single-photon sources*, Meeting in honor of Nobel laureate Roy Glauber, Department of Microelectronics and Applied Physics, KTH, Sweden (2005).
- \*47. **D. Ljunggren**, *Preparation of entangled photonic qubits in controlled temporal and spatial domains for the use in long-distance quantum communication*, (invited talk) Department of Physics, Clarendon Laboratory, University of Oxford, UK (2007).
- \*48. **D. Ljunggren**, *Preparation of hybrid-coded entangled photonic qubits in controlled temporal and spatial domains for the use in long-distance quantum communication*, (invited talk) Institute of Photonic Sciences (ICFO), Barcelona, Spain (2007).
- \*49. **D. Ljunggren**, *Down Purcell's road... Spatial and temporal single-photon control: from cavities to heralding*, Department of Physics, Clarendon Laboratory, University of Oxford, UK (2009).