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DR SEBASTIAN KNAUER - SELECTED PUBLICATIONS

(updated: 07/07/2020)

Journal Publications

- 2020 **S. Knauer**, J.P. Hadden, and J.G. Rarity. *In-situ measurements of fabrication induced strain in diamond photonic-structures using intrinsic color centers*. (NPJ Quantum Information 6, 50).
- 2020 A.A. Gentile†, B. Flynn†, **S. Knauer†**, N. Wiebe, S. Paesani, C.E. Granade, J.G. Rarity, R. Santagati, A. Laing. *Learning models of quantum systems from experiments* (arXiv:2002.06169, †equal contribution).
- 2019 R. Santagati†, A.A. Gentile†, **S. Knauer†**, S. Schmitt, S. Paesani, C. Granade, N. Wiebe, J. Wang, L.P. McGuinness, M.G. Thompson, J.G. Rarity, F. Jelezko and A. Laing. *High sensitivity magnetometry using a single electronic spin in diamond at room temperature with one-photon-per-readout on average*. (PRX 9, 021019, †equal contribution).
- 2019 J. Sabines-Chesterking, A.R. McMillan, P.A. Moreau, S.K. Joshi, **S. Knauer**, E. Johnston, J.G. Rarity, J.C.F. Matthews. *Twin-beam sub-shot-noise rasterscanning microscope*. (Optics Express 27(21), 30810).
- 2017 **S. Knauer**, F. Ortiz Huerta, M. Lopez-Garcia, and J.G. Rarity. *Polymer photonic microstructures for quantum applications and sensing*. (Springer - Optical and Quantum Electronics 49:3, pp.102).
- 2017 J. Wang, S. Paesani, R. Santagati, **S. Knauer**, A.A. Gentile, N. Wiebe, M. Petruzzella, A. Laing, J.G. Rarity, J.L. O'Brien, and M.G. Thompson. *Experimental Quantum Hamiltonian Learning*. (Nature Physics 13:6, 551-555).
- 2017 **S. Knauer**, M. López-García, and J.G. Rarity. *Structured polymer waveguides on distributed Bragg reflector coupling to solid state emitter*. (Journal of Optics 19(6):065203, JoO highlighted paper of the week).
- 2016 Y.-C. Chen, P. Salter, **S. Knauer**, L. Weng, A. Frangeskou, C. Stephen, P.R. Dolan, S. Johnson, B. Green, G. Morley, M.E. Newton, J. G. Rarity, M.J. Booth, and J.M. Smith. *Laser writing of coherent colour centres in diamond*. (Nature Photonics 234, 1749-4893).
- 2016 P. Androvitsaneas, A.B. Young, S. Maier, C. Schneider, M. Kamp, S. Höfling, **S. Knauer**, E. Harbord, C.Y. Hu, J.G. Rarity, and R. Oulton. *A quantum dot micropillar system for deterministic light matter interactions*. (PRB 93(24) rapid, editor's choice).
- 2012 D. Wildanger, B.R. Patton, H. Schill, L. Marseglia, J.P. Hadden, **S. Knauer**, A. Schönle, J.G. Rarity, J.L. O'Brien, S.W. Hell, and J.M. Smith. *Solid immersion facilitates*

fluorescence microscopy with nanometer resolution and sub-Ångström emitter localization. (Advanced Materials 24(44):309-313).

- 2011 G. Steudle, **S. Knauer**, U. Herzog, E. Stock, D. Bimberg, and O. Benson. *Experimental optimal maximum-confidence discrimination and optimal unambiguous discrimination of two mixed single-photon states.* (PRA 83(5):2-5).

Selected Conference Proceedings

- 2019 A.A. Gentile, R. Santagati, **S. Knauer**, S. Schmitt, S. Paesani, C. Granade, N. Wiebe, J. Wang, L.P. McGuinness, M.G. Thompson, J.G. Rarity, F. Jelezko and A. Laing. *High-sensitivity magnetometry at room temperature with post-processed optical readout of single NV-centres.* (Conference on Lasers and Electro-Optics & Quantum Electronics and Laser Science Conference Europe. paper SM2F. 2).
- 2019 A.A. Gentile, R. Santagati, **S. Knauer**, S. Schmitt, S. Paesani, C. Granade, N. Wiebe, J. Wang, L.P. McGuinness, M.G. Thompson, J.G. Rarity, F. Jelezko and A. Laing. *Room temperature magnetic field learning with optically readout single NV-centers* (Conference on Lasers and Electro-Optics & Quantum Electronics and Laser Science Conference US. paper JSV-2.2).
- 2018 J. Sabines-Chesterking, A. McMillan, P.A. Moreau, **S. Knauer**, E. Johnston, S. Joshi, J. Rarity, and J. Matthews. *Sub-shot-noise absorption imaging with a hybrid detection scheme.* (Conference on Lasers and Electro-Optics & Quantum Electronics and Laser Science Conference US. paper JW2A-139).
- 2017 J. Wang, S. Paesani, R. Santagati, **S. Knauer**, A. A. Gentile, N. Wiebe, M. Petruzzella, A. Laing, J. Rarity, J. O'Brien, and M. Thompson. *Learning nitrogen-vacancy electron spin dynamics on a silicon quantum photonic simulator.* (Conference on Lasers and Electro-Optics & Quantum Electronics and Laser Science Conference US).
- 2017 S. Paesani, J. Wang, R. Santagati, **S. Knauer**, A.A. Gentile, N. Wiebe, M. Petruzzella, A. Laing, J.G. Rarity, J.L. O'Brien, and M. Thompson *Experimental Quantum Hamiltonian Learning using a silicon photonic chip and a nitrogen-vacancy electron spin in diamond.* (Conference on Lasers and Electro-Optics & Quantum Electronics and Laser Science Conference Europe).
- 2017 R. Santagati, J. Wang, S. Paesani, **S. Knauer**, A.A. Gentile, N. Wiebe, M. Petruzzella, J.L. O'Brien, J.G. Rarity, A. Laing, and M.G. Thompson. *Towards practical characterization of quantum systems with quantum Hamiltonian learning.* (Frontiers in Optics, paper FTh3E.7).
- 2016 **S. Knauer**, F. Ortiz Huerta, M. Lopez-Garcia, and J.G. Rarity. *Polymer photonic microstructures for quantum applications and sensing.* (Conference on Numerical Simulation of Optoelectronic Devices. paper TuA4).
- 2013 **S. Knauer**, J.P. Hadden, N. Sergis, J. Kennard, J.L. O'Brien, and J.G. Rarity. *Tailoring single photon emission from diamond using nano-structures.* (Conference on Lasers and Electro-Optics & Quantum Electronics and Laser Science Conference US. paper JTh2A.77).
- 2013 K. Aungkunsiri, D. Bonneau, J. Carolan, D. Fry, J.P. Hadden, S. Ho, J.E. Kennard, **S. Knauer**, E. Martin-Lopez, J. Meinecke, G. Mendoza, J. Munns, M. Piekarek, K. Poullos, X. Qiang, N. Russell, R. Santagati, A. Santamato, P. Shadbolt, P. Sibson, J. Silverstone, O. Snowdon, N. Tyler, J. Wang, C. Wilkes, S.R. Whittaker, J. Barreto, D. Beggs, X. Cai, P. Jiang, A. Laing, J.C.F. Matthews, G.D. Marshall, A. Peruzzo, X-Q Zhou, J.G. Rarity,

- M.G. Thompson, J.L. O'Brien, *Photonic quantum technologies*. (Conference on Lasers and Electro-Optics & Quantum Electronics and Laser Science Conference Europe. Invited paper).
- 2010 O. Benson, G. Steudle, **S. Knauer**, U. Herzog. *Experimental Implementation of Optimum Unambiguous and Maximum-Confidence Discrimination of Two Single Photon Mixed States* (Conference on Lasers and Electro-Optics & Quantum Electronics and Laser Science Conference US. paper JThE29).

Selected First Author Conference Contributions

- 2017 **S. Knauer**, J. Wang, S. Paesani, R. Santagati, A.A. Gentile, N. Wiebe, M. Petruzzella, J.L. O'Brien, J.G. Rarity, A. Laing, and M.G. Thompson. *Nitrogen-vacancy centres as model systems for Quantum Hamiltonian Learning*. New Diamond and Nano Carbons (NDNC). Cairns, Australia. (Contributed Talk).
- 2017 **S. Knauer**. *Diamond – Great Stuff*. Quantum Engineering Technology Labs seminar. Bristol, UK. (Invited Talk).
- 2016 **S. Knauer**. *Photonic Structure Coupling and Strain Sensing with Single Photon Emitters in Diamond*. Conference on Numerical Simulation of Optoelectronic Devices (NUSOD). Sydney, Australia. (Contributed Talk).
- 2016 **S. Knauer**. *Photonic Structure Coupling and Strain Sensing with Single Photon Emitters in Diamond*. Centre for Quantum Computation and Communication Technology - Centre seminar. Sydney, Australia. (Invited Talk).
- 2016 **S. Knauer**. *The bottom line is*. Centre for Quantum Photonics seminar. Bristol, UK. (Invited Talk).
- 2013 **S. Knauer**, J.P. Hadden, N. Sergis, J.E. Kennard, J.L. O'Brien, J.G. Rarity. *Tailoring single photon emission from diamond using nano-structures*. Conference on Lasers and Electro-Optics & Quantum Electronics and Laser Science Conference (CLEO). San Jose, USA. (Contributed Talk).
- 2013 **S. Knauer**, J.P. Hadden, J. Kennard, J.L. O'Brien, J.G. Rarity. *Single photon emission from diamond using nano-structures*. International Conference on Diamond and Carbon Materials. Riva del Garda, Italy. (Contributed Talk).
- 2012 **S. Knauer**, J.P. Hadden, J. Kennard, J.L. O'Brien, J.G. Rarity. *Intrinsic or Extrinsic Nitrogen-Vacancy Centres for Spin-Photon-Interfaces?* International Conference on Diamond and Carbon Materials. Granada, Spain. (Contributed Talk).
- 2012 **S. Knauer**, J.P. Hadden, J. Kennard, J.L. O'Brien, J.G. Rarity. *FIB fabricated diamond nanostructures coupled to a Nitrogen-Vacancy Centre*. European Conference on Integrated Optics - FIB for Photonics 2012. Sitges/Barcelona Spain (Contributed Talk).
- 2012 **S. Knauer**, J.P. Hadden, J. Kennard, J.L. O'Brien, J.G. Rarity. *Cavity QED for Spin-Photon-Interface in bulk diamond*. Centre for Quantum Photonics seminar. Exeter, UK. (Invited Talk).
- 2011 **S. Knauer**, J.P. Hadden, L. Marseglia, J. Kennard, B. Patton, J.L. O'Brien, J.G. Rarity. *Diamond nano-cavities for quantum information*. The Rank Prize Funds: Symposium on Optical Implementation of Quantum Information. Lake District, UK (Invited Talk).