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DR SEBASTIAN KNAUER - SELECTED PUBLICATIONS

(Updated: 15/04/2024)

Journal Publications (h-index 13)

2024 N. Zenbaa, C. Abert, F. Majcen, M. Kerber, R. Serha, **S. Knauer**, Q. Wang, T. Schrefl, D. Suess, and A. Chumak. Magnonic inverse-design processor. (Arxiv, under review April 2024). doi:arxiv.org/abs/2403.17724.

2024 R. O. Serha, A. A. Voronov, D. Schmoll, R. Verba, K. O. Levchenko, S. Koraltan, K. Davídková, B. Budinska, Q. Wang, O. V. Dobrovolskiy, M. Urbánek, M. Lindner, T. Reimann, C. Dubs, C. Gonzalez-Ballestero, C. Abert, D. Suess, D. A. Bozhko, **S. Knauer**, and A. V. Chumak. *Magnetic anisotropy and GGG stray field in YIG/GGG films down to millikelvin temperatures*. (NPJ Spintronics, submitted Feb. 2024). doi:arxiv.org/abs/2402.12112.

2023 **S. Knauer**, K. Davídková, D. Schmoll, R. O. Serha, A. Voronov, Q. Wang, R. Verba, O. V. Dobrovolskiy, M. Lindner, T. Reimann, C. Dubs, M. Urbánek, and A. V. Chumak. *Propagating spin-wave spectroscopy in a liquid-phase epitaxial nanometer-thick YIG film at millikelvin temperatures.* (J. Appl. Phys. 133, 143905, Special topic on Recent Advances in Magnonics), doi:10.1063/5.0137437.

2023 S. Casulleras, **S. Knauer**, Q. Wang, O. Romero-Isart, A. V. Chumak, and C. Gonzalez-Ballestero. *Generation of Spin-Wave Pulses by Inverse Design*. (Phys. Rev. Appl., 19, 6, 064085), doi:10.1103/PhysRevApplied.19.064085.

2022 A.V. Chumak, P. Kabos, M. Wu *et al. Roadmap on Spin-Wave Computing.* (IEEE Transactions on Magnetics, 58, 6, contributing chapter), doi:10.1109/TMAG.2022.3149664.

2021 M. Schneider, D. Breitbach, R. O. Serha, Q. Wang, A. A. Serga, A. N. Slavin, V. S. Tiberkevich, B. Heinz, B. Lägel, T. Brächer, C. Dubs, **S. Knauer**, O. V. Dobrovolskiy, P. Pirro, B. Hillebrands, and A. V. Chumak. *Control of the Bose-Einstein Condensation of Magnons by the Spin Hall Effect.* (PRL, 127, 237203), doi: PhysRevLett.127.237203.

2021 S. A. Bunyaev, B. Budinska, R. Sachser, Q. Wang, K. Levchenko, **S. Knauer**, A. V. Bondarenko, M. Urbanek, K. Y. Guslienko, A. V. Chumak, M. Huth, G. N. Kakazei, and O. V. Dobrovolskiy. *Engineered magnetization and exchange stiffness in direct-write Co-Fe nanoelements.* (APL 118, 2), doi:10.1063/5.0036361.

2021 O. V. Dobrovolskiy, Q. Wang, D. Yu. Vodolazov, B. Budinska, **S. Knauer**, R. Sachser, M. Huth, and A. I. Buzdin. *Cherenkov radiation of spin waves by ultra-fast moving magnetic flux quanta.* (arXiv: arXiv:2103.10156v), doi:arXiv.2103.10156.

2021 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* (Nature Physics 17, 17, **†equal contribution**), doi: 10.1038/s41567-021-01201-7.

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), doi: 10.1038/s41534-020-0277-1.

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**), doi.org/10.1103/PhysRevX.9.021019.

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), doi:OE.27.030810.

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), doi: 10.1007/s11082-017-0922-x.

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), doi: 10.1038/nphys4074.

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*), doi: 10.1007/s11082-017-0922-x.

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), doi: 10.1038/nphoton.2016.234.

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), doi:PhysRevB.93.241409 .

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), doi: 10.1002/adma.201203033.

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), doi:PhysRevA.83.050304.

Selected Conference Proceedings

2023 **S. Knauer**, S. Peinhaupt, K. Davidková, D. Schmoll, R. O. Serha, A. A. Voronov, Q. Wang, M. Lindner, T. Reimann, C. Dubs4, M. Urbánek, and A. V. Chumak. *Propagating Spin-Wave Spectroscopy At Millikelvin Temperatures Using Arbitrary Magnetisation Orientations* (IEEE International Magnetic Conference, IEEE Xplore BQ-02_SPA-11).

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. Aungskunsiri, 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. Poulios, 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).