

**Publications by**  
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Quantum Nanophysics Group

Faculty of Physics

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## A) Publications listed in the Science Citation Index

- 1) Y.Y. Fein, S. Pedalino, A. Shayeghi, F. Kialka, S. Gerlich, and M. Arndt  
*Nanoscale magnetism probed in a matter-wave interferometer*  
**Phys. Rev. Lett.** **129**, 123001 (2022), DOI: 10.1103/PhysRevLett.129.123001  
**Editor's choice & Editor's pick & Featured in "Physics":**  
<https://physics.aps.org/articles/v15/137>
  
1. S. Pedalino, T. de Sousa, Y.Y. Fein, S. Gerlich, and M. Arndt  
*Exploring metal nanoparticles for matter-wave interferometry*  
**Phys. Rev. A** **106**, 023312 (2022), DOI: 10.1103/PhysRevA.106.023312
  
2. F. Kialka, Y. Y. Fein, S. Pedalino, S. Gerlich, and M. Arndt  
*A roadmap for universal high-mass matter-wave interferometry*  
**AVS Quantum Sci.** **4**, 020502 (2022), DOI: 10.1116/5.0080940  
**Scilight: DOI: 10.1063.10.0010425**
  
3. J. Fait, S. Putz, G. Wachter, J. Schalko, U. Schmid, M. Arndt, and M. Trupke  
*High finesse microcavities in the optical telecom O-band*  
**Appl. Phys. Lett.** **119**, 221112 (2021), DOI: 10.1063/5.0066620
  
4. C. Brand, S. Troyer, C. Knobloch, O. Cheshnovsky, and M. Arndt  
*Single-, double-, and triple-slit diffraction of molecular matter-waves*  
**Am. J. Phys.** **89**, 1132 (2021), DOI: 10.1119/5.0058805  
**Am. J. Phys. Cover Page & Editor's Pick**
  
5. W. C.-W. Huang, H. Batelaan, M. Arndt  
*Kapitza-Dirac Blockade: A Universal Tool for the Deterministic Preparation of Non-Gaussian Oscillator States*  
**Phys. Rev. Lett.** **126** (2021), DOI: 10.1103/PhysRevLett.126.253601  
**Phys. Rev. Lett. Cover Page**
  
6. C. Brand, M. R. A. Monazam, C. Mangler, Y. Lilach, O. Cheshnovsky, M. Arndt, J. Kotakoski  
*The morphology of doubly-clamped graphene nanoribbons*  
**2D Materials** **8**, 025035 (2021), DOI: 10.1088/2053-1583/abe952
  
7. C. Brand, F. Kialka, S. Troyer, C. Knobloch, K. Simonovic, B.A. Stickler, K. Hornberger, M. Arndt,  
*Bragg diffraction of large organic molecules*  
**Phys. Rev. Lett.** **125**, 033604 (2020), DOI: 10.1103/PhysRevLett.125.033604  
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8. Y.Y. Fein, A. Shayeghi, F. Kialka, P. Geyer, S. Gerlich, M. Arndt,  
*Quantum-assisted diamagnetic deflection of molecules*  
**Phys. Chem. Chem. Phys.** **22**, 14036 (2020), DOI: 10.1039/d0cp02211j  
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9. J. Schätti, V. Köhler, M. Mayor, Y.Y. Fein, P. Geyer, L. Mairhofer, S. Gerlich, M. Arndt,  
*Matter-wave interference and deflection of tripeptides decorated with fluorinated alkyl chains*  
**J Mass Spectrom.** (2020), DOI:10.1002/jms.4514

10. A. Shayeghi, P. Rieser, G. Richter, U. Sezer, J.H. Rodewald, P. Geyer, T.J. Martinez, M. Arndt, *Matter-wave interference of a native polypeptide*  
**Nature Comm.**, **11**, **144** (2020), DOI: 10.1038/s41467-020-15280-2
11. C. Brand, K. Simonovic, F. Kialka, S. Troyer, P., Geyer, M. Arndt, *A fiber-based beam profiler for high-power laser beams in confined spaces and ultra-high vacuum*  
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12. Y. Y. Fein, F. Kialka, P. Geyer, S. Gerlich, M. Arndt, *Coriolis compensation via gravity in a matter-wave interferometer*  
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14. Y. Y. Fein, P. Geyer, F. Kialka, S. Gerlich, M. Arndt, *Improved accuracy fullerene polarizability measurements in a long-baseline matter-wave interferometer*  
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15. Y. Y. Fein, P. Greyer, P. Zwick, F. Kialka, S. Pedalino, M. Mayor, S. Gerlich and M. Arndt, *Quantum Superposition of Molecules Beyond 25kDa*,  
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16. J. Schätti, M. Kriegleder, M. Debiossac, M. Kerschbaum, P. Geyer, M. Mayor, M. Arndt, V. Köhler, *Neutralization of insulin by photocleavage under high vacuum*,  
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19. F. Kialka, B. Stickler, K. Hornberger, Y.Y. Fein, P. Geyer, L. Mairhofer, S. Gerlich, M. Arndt, *Concepts for long-baseline high-mass matter-wave interferometry*  
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20. J. Schätti, P. Rieser, U. Sezer, G. Richter, P. Geyer, G. G. Rondina, D. Häussinger, M. Mayor, A. Shayeghi, V. Köhler, M. Arndt *Pushing the mass limit for intact launch and photoionization of large neutral biopolymers*  
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*Isotope-selective high-order interferometry with large organic molecules in free fall*  
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26. S. Kuhn, G. Wachter, F. Wieser, J. Millen, M. Schneider, J. Schalko, U. Schmid, M. Trupke, M. Arndt  
*Nanoparticle detection in an open-access silicon microcavity*  
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