

Scanning Probe Methods Group, Prof. Dr. Roland Wiesendanger

Publications: Original Articles

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Subgroup: STM/STS on Semiconductors

Non-local detection of coherent Yu–Shiba–Rusinov quantum projections*K. T. Ton, C. Xu, I. Ioannidis, L. Schneider, T. Posske, R. Wiesendanger, D. K. Morr, and J. Wiebe*, *Nature Physics* **22** 54-60 (2026)**Symmetry aspects of Yu-Shiba-Rusinov bands in magnetic atomic chains on a superconductor***B. Nyári, Ph. Beck, A. Lászlóffy, L. Schneider, K. Palotás, L. Szunyogh, J. Wiebe, B. Újfalussy, and L. Rózsa*, *Phys. Rev. B* **112** 115414 (2025)**Search for large topological gaps in atomic spin chains on proximitized superconducting heavy-metal layers***Ph. Beck, B. Nyári, L. Schneider, L. Rózsa, A. Lászlóffy, K. Palotás, L. Szunyogh, B. Újfalussy, J. Wiebe, and R. Wiesendanger*, *Communications Physics* **6** 83 (2023)**Systematic study of Mn atoms, artificial dimers, and chains on superconducting Ta(110)***P. Beck, L. Schneider, R. Wiesendanger, and J. Wiebe*, *Phys. Rev. B* **107** 024426 (2023)**Precursors of Majorana modes and their length-dependent energy oscillations probed at both ends of atomic Shiba chains***Lucas Schneider, Philip Beck, Jannis Neuhaus-Steinmetz, Levente Rózsa, Thore Posske, Jens Wiebe, and Roland Wiesendanger*, *Nature Nanotechnology* **17** 384 (2022)**Structural and superconducting properties of ultrathin Ir films on Nb(110)***Ph. Beck, L. Schneider, L. Bachmann, J. Wiebe, and R. Wiesendanger*, *Phys. Rev. Materials* **6** 024801 (2022)**Correlation of Yu–Shiba–Rusinov States and Kondo Resonances in Artificial Spin Arrays on an s-Wave Superconductor***A. Kamlapure, L. Cornils, R. Žitko, M. Valentyuk, R. Mozara, S. Pradhan, J. Fransson, A. I. Lichtenstein, J. Wiebe, and R. Wiesendanger*, *Nano Letters* **21** 6748 (2021)**Topological Shiba bands in artificial spin chains on superconductors***L. Schneider, P. Beck, T. Posske, D. Crawford, E. Mascot, S. Rachel, R. Wiesendanger and J. Wiebe*, *Nature Physics* **17** 943 (2021)**Spin-orbit coupling induced splitting of Yu-Shiba-Rusinov states in antiferromagnetic dimers***P. Beck, L. Schneider, L. Rózsa, K. Palotás, A. Lászlóffy, L. Szunyogh, J. Wiebe, and R. Wiesendanger*, *Nature Communications* **12** 2040 (2021)**Spin-Polarized Yu-Shiba-Rusinov States in an Iron-Based Superconductor***D. Wang, J. Wiebe, R. Zhong, G. Gu, and R. Wiesendanger*, *Phys. Rev. Lett.* **126** 076802 (2021)**Colloquium: Atomic spin chains on surfaces***D.-J. Choi, N. Lorente, J. Wiebe, K. von Bergmann, A. F. Otte, and A. J. Heinrich*, *Rev. Mod. Phys.* **91** 041001 (2019)**Stabilizing spin systems via symmetrically tailored RKKY interactions***J. Hermenau, S. Brinker, M. Marciari, M. Steinbrecher, M. dos Santos Dias, R. Wiesendanger, S. Lounis, and J. Wiebe*, *Nature Communications* **10** 2565 (2019)**Engineering the spin couplings in atomically crafted spin chains on an elemental superconductor***A. Kamlapure, L. Cornils, J. Wiebe, and R. Wiesendanger*, *Nature Communications* **9** 3253 (2018)**Non-collinear spin states in bottom-up fabricated atomic chains***M. Steinbrecher, R. Rausch, K. T. Ton, J. Hermenau, A. A. Khajetoorians, M. Pothoff, R. Wiesendanger, and J. Wiebe*, *Nature Communications* **9** 2853 (2018)**Enhanced spin-ordering temperature in ultrathin FeTe films grown on a topological insulator***U. R. Singh, J. Warmuth, A. Kamlapure, L. Cornils, M. Bremholm, Ph. Hofmann, J. Wiebe, and R. Wiesendanger*, *Phys. Rev. B* **97** 144513 (2018)**Domain imaging across the magneto-structural phase transitions in Fe_{1-x}Te***J. Warmuth, M. Bremholm, P. Hofmann, J. Wiebe, and R. Wiesendanger*, *npj Quantum Materials* **3** 21 (2018)

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