Abstract Submitted
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Skyrmionic like spin-texture of Rashba electron scattering at magnetic adatoms deposited on the Au(111) surface[1] SAMIR LOUNIS, ANDREAS BRINGER, STEFAN BLÜGEL, Institut für Festkörperforschung (IFF) and Institute for Advanced Simulation (IAS), Forschungszentrum Juelich — Surfaces are an inversion asymmetric environment. In combination with the spin-orbit interaction, surface electrons experience a Rashba effect, which leads to spin-split surface states [1]. Having an adatom on such a surface, surface states scatter at it. Interferences are created from which, surprisingly, the fingerprints of spin-orbit coupling cannot be seen with a scanning tunneling microscope (STM) [2]. Instead of a single adatom, Walls and Heller [3] proposed to use a corral of atoms to create extra spin-orbit coupling related modulations in the charge density. Resting on multiple scattering theory, we propose to visualize such effects using a spin-polarized STM considering either a single magnetic adatom or a corral of magnetic adatoms.

[1] S. Lashell, B.A. McDougall, E. Jensen, Phys. Rev. Lett.**77**, 3419 (1996).
[2] L. Petersen and P. Hedegård, Surf. Sci. **49**, 459 (2000).
[3] J.D. Walls and E.J. Heller, Nano Letters **7**, 3377 (2007).

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Samir Lounis
Institut für Festkörperforschung (IFF) and Institute for Advanced Simulation (IAS), Forschungszentrum Juelich

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