**Plasmonic vortices as sources of angular momentum electron beams**

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**Abstract:** The excitation laser polarization and coupling geometry metastructures define the spin-orbit interaction of surface plasmon polaritons at metal-vacuum interfaces. We image the topological plasmonic fields by imaging nonlinear electron emission by photoemission electron microscopy. We record with nanometer spatial and femtosecond temporal resolution the generated space-time spin textures of plasmonic vortex fields and how they can dress the space-time invariance of matter. The angular momentum of light is transferred to photoemitted electrons in a coherent two-photon emission. We conclude that the angular momentum must be carried away by the generated electron beam. The plasmonic vortex cores act as sources of magnetoelectric interaction on 10 nm scale.