

Montag, 17.01.2022 um 15:15 Uhr
Online Seminar

Spin-orbit-induced effects in VLEED experiments from MoS₂/Au(111)



© Christoph Angrick

Christoph Angrick

WWU Münster
Physikalisches Institut

The influence of spin-orbit interaction on low-energy electron reflection from single-layer MoS₂ on Au(111) was studied by VLEED (very-low-energy electron diffraction) [1,2,3]. Maps of the electron reflectivity and the spin asymmetry of the reflected electron intensities were measured for a wide range of electron incidence angles and kinetic energies. To account for an adlayer coverage of about 30%, maps of the Au(111) substrate and for a MoS₂ bulk sample were measured as well. The adlayer and substrate signals were distinguished by a comparison of the maps.

For MoS₂/Au(111), we obtained a spin asymmetry of the reflected intensities, which shows a characteristic feature with alternating sign in the energy region of a VLEED fine structure [1]. The Au(111) substrate, in contrast, shows qualitatively different spin-asymmetry features, partially with reversed sign compared with MoS₂/Au(111). The results of bulk MoS₂ resemble the single-layer data to a great extent. The influence of the substrate on the results will be discussed.

[1] Burgbacher *et al.*, Phys. Rev. B **87**, 195411 (2013).

[2] Thiede *et al.*, Phys. Rev. Applied **1**, 054003 (2014).

[3] Angrick *et al.*, J. Phys.: Condens. Matter **33**, 115001 (2020).

