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S E M I N A R
aus
Halbleiterphysik und Nanotechnologie

Mo, 28.1.2019, 11:15 Uhr, Hörsaal für Physik

"In situ and real time X-ray scattering on nano-scaled materials"

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The rapid increase of novel low-dimensional and nano-scale composite materials in recent years calls for more sophisticated analytical methods. The wide- and small-angle X-ray scattering enables a deeper insight into kinetics of recent nano-scale materials. In my contribution, I will review the recent progress in grazing-incidence wide- and small-angle X-ray scattering (GI-WAXS/GISAXS) in laboratory conditions. Primarily I will focus on the time-resolved measurements in different environments, which span from ultra-high vacuum to air/water interface. In particular, I will emphasize applications of real-time GI-WAXS/SAXS in the following examples: (i) solvent annealing of polymer solar cells, (ii) growth of metals on graphene surface, (iii) self-assembly of few-layer MoS_2 at liquid interface, (iv) growth of oriented pentacene films on graphene, (v) growth and characterization of diindenoperylene molecules on thin MoS_2 substrate and (vi) crystallization of perovskite thin films.