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PP8 REAL-TIME MONITORING OF THIN FILM GROWTH BY MEANS OF X-RAY SCATTERING

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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 the 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. In particular, I will emphasize applications of real-time GI-WAXS/SAXS in the following examples: (i) growth of metals on graphene surface, (ii) growth of 3D correlated Ge QDs, (iii), growth of oriented pentacene films on graphene (iv) growth of differently oriented diindeoperylene molecules on few-layer MoS₂ layers and (v) crystallization of 2D perovskite thin films.

PP9 COMPARISON OF Yb AND Eu INTERMETALLIC COMPOUNDS IN R-Pd-X (R = Yb, Eu, X = Sn, In) SYSTEMS

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We report on the comparison of selected Yb and Eu compounds from the $R\text{-Pd-X}$ ($R = \text{Yb, Eu}$, $X = \text{Sn, In}$) systems, where their synthesis, crystal structures and thermodynamic, magnetic and transport physical properties are presented. The phenomenon of valence instability causes Eu and Yb to fluctuate between divalent and trivalent ground states - $\text{Yb}^{3+} (4f^{13}) / \text{Yb}^{2+} (4f^{14})$ and $\text{Eu}^{3+} (4f^6) / \text{Eu}^{2+} (4f^7)$. Substituting of Yb/Eu rare earth element in chosen compounds results into the change of magnetic properties, where only weak paramagnetic behaviour (YbPdSn_2) turns to long-range magnetic phase transition (EuPdSn_2) with the complex magnetic behaviour. Under the influence of magnetic field, the magnetic behaviour was found to evolve from an antiferromagnetic to a ferromagnetic state as a consequence of a re-arrangement of magnetic moments (EuPdSn_2 , EuPd_2Sn_4). The YbPd_2In compound shows very weak magnetic interactions, negligible Kondo effect and with large electronic entropy at very low temperature it appears to be a good candidate for adiabatic demagnetization cooling processes.

PP10 BIOGENIC IRON IN MRI DIAGNOSTICS

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