Thin Layers of 2D Transition Metal Dichalcogenides

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Abstract. In my presentation, I will summarise activities and results achieved by the group of 2D materials at IEE SAS. The talk will be focused mainly on MoS_2, but another material, namely PtSe2, will also be mentioned. First, an overview of the sulfurisation/selenisation process of the thin metallic precursor films will be given. Then, depending on the growth conditions, the thin 2D layers can be grown with the basal planes aligned parallel or perpendicular to the substrate. We have used two techniques to detect the layer alignment – grazing-incidence wide-angle X-ray scattering (GIWAXS) and polarised Raman spectroscopy. In addition to these techniques, results on electrical transport and optical measurements will be shown for $PtSe_2$.