Contribution ID: **233** Type: **Talk**

【605】Novel structural and electronic phases of 2D transition metal dichalcogenides

Tuesday 27 August 2019 15:00 (30 minutes)

I will present our theoretical work that aims at revealing systematic trends and developing intuition across the entire family of 2D transition metal dichalcogenides (TMDs). I will address the relevance of the crystal and ligand fields in determining the relative stability of 1T and 1H polymorphs and introduce a unified picture of lattice instabilities (charge-density-wave and strong-coupling regime) in metallic TMDs. The rest of my talk will focus on two particular realisations of topological and magnetic phases. I will discuss the well-ordered 1T'-1H heterojunctions experimentally observed in WSe_2 in relation to the quantum spin Hall interface states and present the observation of magnetic ordering and magnetoresistive switching in few-layer $PtSe_2$ that realises a new scenario in magnetic 2D materials.

Author: Prof. YAZYEV, Oleg V. (EPFL - EPF Lausanne)

Presenter: Prof. YAZYEV, Oleg V. (EPFL - EPF Lausanne)

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