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Effects of interlayer interactions on physics of layered crystals

In this talk, I will review my recent studies on critical effects of interlayer interaction in determining electronic, structural and magnetic properties of layered two-dimensional crystals. It is shown that the structural stabilities, electronic energy bands as well as topological properties are critically dependent of nature of interlayer interactions between adjacent two-dimensional crystals. Examples includes twisted bilayer graphene, 1T'-type transition metal dichalcogenides and two-dimensional magnetic crystals.