

Perpendicular magnetic anisotropy and its reorientation in two-dimensional structures

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Exploring magnetism in otherwise nonmagnetic two-dimensional materials, such as graphene and transition metal dichalcogenides, is at the heart of spintronics research. In this talk, we will present our recent findings on the possibility of reaching an atomic-scale perpendicular magnetic anisotropy by carefully exploring the large spin-orbit coupling, orbital magnetism, and ligand field in a suitable choice of a two-dimensional material with transition metal adatoms. We will also discuss towards promising approaches for manipulating magnetism and magnetization vector in two-

dimensional nanostructures by an external stimulus, that is, forming the tetrahedral sp^3 -metallic d hybrid bonds, strain effect, or applying an electric field.

Biography

Dorj Odkhuu has completed his PhD in Physics from University of Ulsan 2014 and postdoctoral studies from Ulsan National Institute of Science and Technology and California State University Northridge. He is currently an assistant Professor at Incheon National University, South Korea. His research focuses on first-principles calculations of magnetic and magnetoelectric materials and he has published more than 40 papers in peer-reviewed journals.

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