
Shuyun Zhou

Department of Physics, Tsinghua University, Beijing, China

syzhou@mail.tsinghua.edu.cn

Enhanced superconductivity in hybrid materials

Interlayer interaction plays a critical role in determining the fundamental properties of materials, in particular for layered (quasi-2D) materials bonded by weak van der Waals force. So far, the effect of interlayer interaction has been mainly investigated by decreasing the number of layers (i.e., quantum confinement effect, Fig. 1a) through mechanical exfoliation or thin film growth techniques. These methods are complicated and the atomically-thin samples are usually unstable. Here I will report a more direct method for controlling the interlayer interaction by inserting large ions into the van der Waals gap of layered materials. This method applies to a wide range of materials and can lead to interesting properties, e.g. enhanced superconductivity.