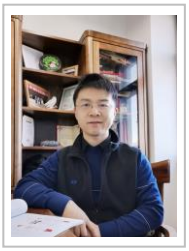
7th International Workshop on 2D Materials

Title of the Presentation: Novel electronic states in graphene



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Short Biography:

Lin He graduated from Beijing University with a PhD degree in physics in 2009. He joined the faculty of Beijing Normal University in 2009 as an assistant professor, and was promoted to professor in 2015. Lin He started to explore novel structural and electronic properties of graphene since 2011 and his group focused on emergent phenomena in graphene. For examples, Lin He's group demonstrated that atomic defect can induce local magnetic moments in graphene, directly imaged topological edges states in AB-BA domain wall of graphene bilayer, and demonstrated the existence of flat bands in magic angle twisted graphene bilayer for the first time.

Abstract:

In this talk, I will give a brief introduction about graphene, especially the novel electronic states realized in graphene [1-12]. For examples, I will show the realization of quasibound states and Berry phase "switch" in graphene quantum dots because of the Kleining tunnelling of massless Dirac fermions in graphene monolayer. I will also introduce the emergence of local magnetic moments and atomic-scale pseudo-spin vortices induced by atomic defects in graphene. I will also show how to tune the structures and electronic properties by introducing strain and a twist between two adjacent layers. The strongly correlated electronic phases, as recently realized in magic-angle twisted bilayer graphene and ABC-stacking trilayer graphene, will also be briefly introduced.

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