

Internal Seminar

Electronic and magnetic nature of ripplocation in Graphene: An ab-initio study

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Ripplocation is a new deformation mechanism observed in the layered materials, which is one of the strongly correlated phases of non-trivial, multivalued, out of plane fluctuations. The effect of ripplocation on the electronic and magnetic properties of graphene are investigated using first principles calculations based on density functional theory. Our classical Monte Carlo Simulation shows the possibility of obtaining a stable ripplocated graphene with strain. Surprisingly, the first principles calculations reveal a flat band near the Fermi level of ripplocated graphene, which now shows the magnetic moment. The magnetic moment and nature of flat band are found to be sensitive with stretch. The consequence of flat bands regarding possible applications are under investigation. One of the useful consequences of a flat band is superconductivity, which may be tuned using stretch.

Thursday, Feb 20th 2020

2:30 PM (Tea/Coffee at 2:00 PM)

Seminar Hall, TIFR-H