

# CM / AMO Seminar

← Condensed Matter & Atomic Molecular Optical →

Thursday, October 10, 2019 / 800 Pupin Hall Thoyer Center / 12:00 PM

## "Flat Bands and Correlated Electronic States in 2D Atomic Crystals"

Stacking two-dimensional atomic crystals or the application of external potentials to such crystals, can radically change their electronic properties. In particular, it is possible to engineer conditions leading to the creation of weakly dispersing (flat) energy bands, where the quenched kinetic energy provides propitious conditions for the emergence of correlated electronic states such as Mott insulators, superconductors, charge density waves etc. This talk will focus on two such examples: twisted graphene bilayers that develop a flat band at a "magic" twist-angle of  $\sim 10^\circ$ , and buckled graphene layers in which a periodically modulated pseudo-magnetic field creates a post-graphene material with flat electronic bands.

1. Jiang, Y. et al. Charge order and broken rotational symmetry in magic-angle twisted bilayer graphene. *Nature* 573, (2019) 91
2. G. Li, et al, Observation of Van Hove singularities in twisted graphene layers, *Nature Physics*, 6 (2010) 109



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