"Twisting 2d materials: the magic and the mystery" by Leon Balents (University of California, Santa Barbara)

Date:
Thursday, January 16, 2020 - 4:00pm to 5:00pm

Series:
Physics and Astronomy Colloquium

Thursdays, 4:00-5:00 pm

1-434 Physics and Astronomy
Reception from 3:45-4:00 p.m.
(unless otherwise posted)

Guest Speaker: Leon Balents (University of California, Santa Barbara)

Talk Title: “Twisting 2d materials: the magic and the mystery”

Abstract: Graphene, a single atom thick lattice of pure carbon, is an ideal material to study the physics of electrons in a two dimensional "flatland". A new twist - literally - on graphene physics arose in the last two years. Driven by a theoretical prediction from 2011, experiments in 2018 confirmed that placing one layer of graphene atop another rotated by a tiny angle of about 1 degree completely changes the behavior of the electrons. The rotation forms a moiré pattern, which acts as a new artificial lattice within which electrons move. At this "magic" angle, this motion is highly correlated and very different from what occurs in the parent graphene. The resulting insulating, magnetic, topological, and superconducting states are the subject of intense current research. This talk will review this active area and describe some of the latest results and theoretical predictions for twisted graphene and beyond.

For more information, contact Yaroslav Tserkovnyak

We thank the following people for their contributions to the wine fund for the post-colloquium reception:
Professors Katsushi Arisaka, Andrea Ghez, Karoly Holczer, Huan Huang, HongWen Jiang, Per Kraus, Alexander Kusenko, Matthew Malkan, Mayank Mehta, Warren Mori, Ni Ni, Seth Putteman, Yaroslav Tserkovnyak, Vladimir Vassiliev, Shenshen Wang, and Nathan Whitehorn.

Location:
1-434 PAB