



Condensed Matter Theory Center Seminar

Thursday, September 22
11:00am-12:30pm
2205 Physics Building

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“Wavefunctions for Flat-Band Lattices”

The electronic band structure of many systems, e.g., carbon-based nanostructures, can exhibit essentially no dispersion. Models of electrons in such flat-band lattices define non-perturbative strongly correlated problems by default. I will review work in my group that theoretically explores strongly correlated lattice models with flat bands. I will focus on recent work that connects wavefunctions of the quantum Hall regime to interacting flat-band lattice models in the absence of a magnetic field. I will also discuss recent results from microscopic modeling of a specific flat-band system, electrons in graphene nanoribbons with zig-zag edges. Our formalism indicates that zero-field flat-band lattice systems offer arenas to study Wigner crystals, quantum liquids, and magnetism.

All are welcome to attend.

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