



# Condensed Matter Theory Center Seminar

Thursday, June 9  
11:00am-12:30pm  
2205 Physics Building

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## “STM spectra of Dirac materials”

In this talk we are going to discuss the unconventional features that appear in the STM spectra of materials such as graphene or topological insulators whose low-energy quasiparticle have Dirac-like character. First, we discuss the STM spectra near a magnetic impurity in graphene and demonstrate that the qualitative nature of the tunneling conductance,  $G(V)$ , would depend on the precise position of the impurity. For impurities at atop a graphene site,  $G(V)$  changes from a dip to a peak through antiresonance as one tunes the Fermi energy to the Dirac point from larger values while for impurities at the center of the hexagon, the  $G$  always shows a peaked feature. Time permitting, we would also discuss the STM spectra as measured by a magnetized STM tip on the surface of a strong topological insulator and show that  $G(V)$  could provide us direct information of the spin texture of the Dirac electrons on the surface.

**All are welcome to attend.**

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