Other

Typical Medium DCA method for disordered systems

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Digital Media Center 1008B
May 28, 2019 - 09:30 am

Abstract:
Disorder is inevitably present in many materials and can dramatically affect their properties. One of the most prominent effects of disorder is electron localization. Having a proper numerical tool to treat disorder effects is necessary for better understanding and control of the properties of real materials. In this talk, I will discuss the TMDCA method, which we have developed to study electron localization in disordered systems. I will present details on the method construction and will focus on its applications on a model Hamiltonians level.

Speaker's Bio:

Hanna Terletska is currently an Assistant Professor in the Department of Physics and Astronomy at Middle Tennessee State University (2017). She received her Ph.D. in 2011 from the Florida State University under the supervision of Professor Vladimir Dobrosavljevic. Her research interests are in theoretical and computational condensed matter physics, with a major focus on studying the properties of strongly correlated and disordered electronic systems, including:

- electron-electron interaction-driven metal-insulator transitions
- effect of disorder on electron localization
- quantum critical and non-fermi liquid behavior
- electronic phase separation in 2d electron systems
- charge ordering
- correlation effects in multi-orbital systems.

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