

Thursday, 23 October 2014  
11:00

AER 19/ Seminar Room 4.14

## Spectroscopy of strongly correlated materials: theoretical aspects

by

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The systems with strong electronic correlations are one of the most fascinating problems in modern solid state physics. Strongly correlated materials exhibit a variety of intriguing properties and phenomena, that are very sensitive to a change of control parameters (e.g. magnetization, temperature, pump-probe time delay, pressure). This remarkably rich physics is a consequence of competing kinetic and Coulomb energies of electrons, which makes a theoretical description of these materials a challenging problem. In the present talk a brief introduction to novel theoretical approaches to describe these materials will be given. The examples of the applications, such as the description of metal-to-insulator transition in  $\text{Ca}_2\text{RuO}_4$  and  $\text{LaCoO}_3$  will be shown. Prospectives and future directions in methods development and applications will be discussed.