

Thursday, 17th December 2015

15:00

AER 19 Seminar Room 4.14

**Excitonic condensation
of strongly correlated electrons**

by

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Spontaneous symmetry breaking is one of the core concepts of condensed matter physics. Besides geometrical symmetries, abstract gauge symmetries can be broken, giving rise to phenomena such as superconductivity. Excitonic condensation provides another example of breaking of an abstract symmetry. Proposed in 1960's it has been only recently that an equilibrium exciton condensate was realized in bi-layer structures of weakly interacting electrons. In this talk, I will address the exciton condensation from the strong coupling perspective. I will present some numerical results for the two-band Hubbard model as well as material specific calculations and discuss promising materials to realize this phenomenon.