

*Informal Seminar*

## **Polariton Condensates**

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**Building 4 , Room 237**

Abstract:

Polaritons are short-lifetime, quasi-number conserved particles with very light effective mass (four orders of magnitude less than an electron) which exist inside specially designed nanostructured solids. During their existence, they act to a very good approximation as a weakly interacting Bose gas, and undergo Bose- Einstein condensation. In the past five years there has been an explosion of new experiments on polariton condensates, including Josephson junction contacts between two condensates, imaging of pinned vortices, measurement of the onset time for coherence, soliton-like motion of a polariton superfluid over long distances, and measurement of the momentum distribution and spatial distribution in a harmonic trap. This talk will be partly review of recent work by others, and partly a focus on our work in Pittsburgh to distinguish between a polariton condensation and from a standard semiconductor laser. Both emit coherent light, but the two transitions are experimentally distinguishable.