DEPARTMENT OF PHYSICS UNIVERSITY OF MARYLAND **CNAM** Condensed Matter Colloquium

2pm, **November 12th,** Room 1201

Electric field induced spin precession in a spin injected FET

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Successful fabrication of a Spin Injected Field Effect Transistor (Spin FET) has been an elusive goal since the device was first proposed by Datta and Das two decades ago. We recently demonstrated a spin FET comprising a high mobility InAs heterostructure with ferromagnetic metal electrodes for the electrical injection and detection of ballistic spin polarized electrons. The modulation of spin precession by using a gate voltage is a unique manifestation of an effect of special relativity. For those who wish to consider spin as a state variable for future generation electronics, the experiment shows that spin can be controlled by the same parameter (voltage) that's used to control the charge state.

H. C. Koo *et al*., Science **325**, 1515 (Sept. 18, 2009)

Host: Ian Appelbaum