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## **Seminar**

### **Stochastic dynamics and feedback control in small magnetic system**

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Many of the information storage and revival devices, including magnetic read heads and random access memory elements utilize manipulation of magnetization in layered magnetic structures. The amount of transport current through magnetic multi-layered systems changes drastically depending on the relative orientation of magnetizations that can be controlled by external magnetic field, resulting in phenomena like giant magnetoresistance, or tunneling magnetoresistance. A spin-polarized current through layered magnetic systems can induce spin transfer torques (STT) initiating magnetization switching or precession. In this talk, I will discuss the role of different current induced torques (STT, field-like-torque) and alignment angle on switching time distribution. Again, the miniaturization of magnetic memory devices make them vulnerable to thermal fluctuations. In this case, current induced STT can be used to suppress the noise, enhancing fidelity of magnetic spin valves. Further, I will discuss entropy production, and related fluctuation theorems in such small single-domain magnetized systems.

***Thursday, Nov 20th 2014***

***11:30 AM (Tea/Coffee at 11:15 AM)***

***Seminar Hall, TCIS***