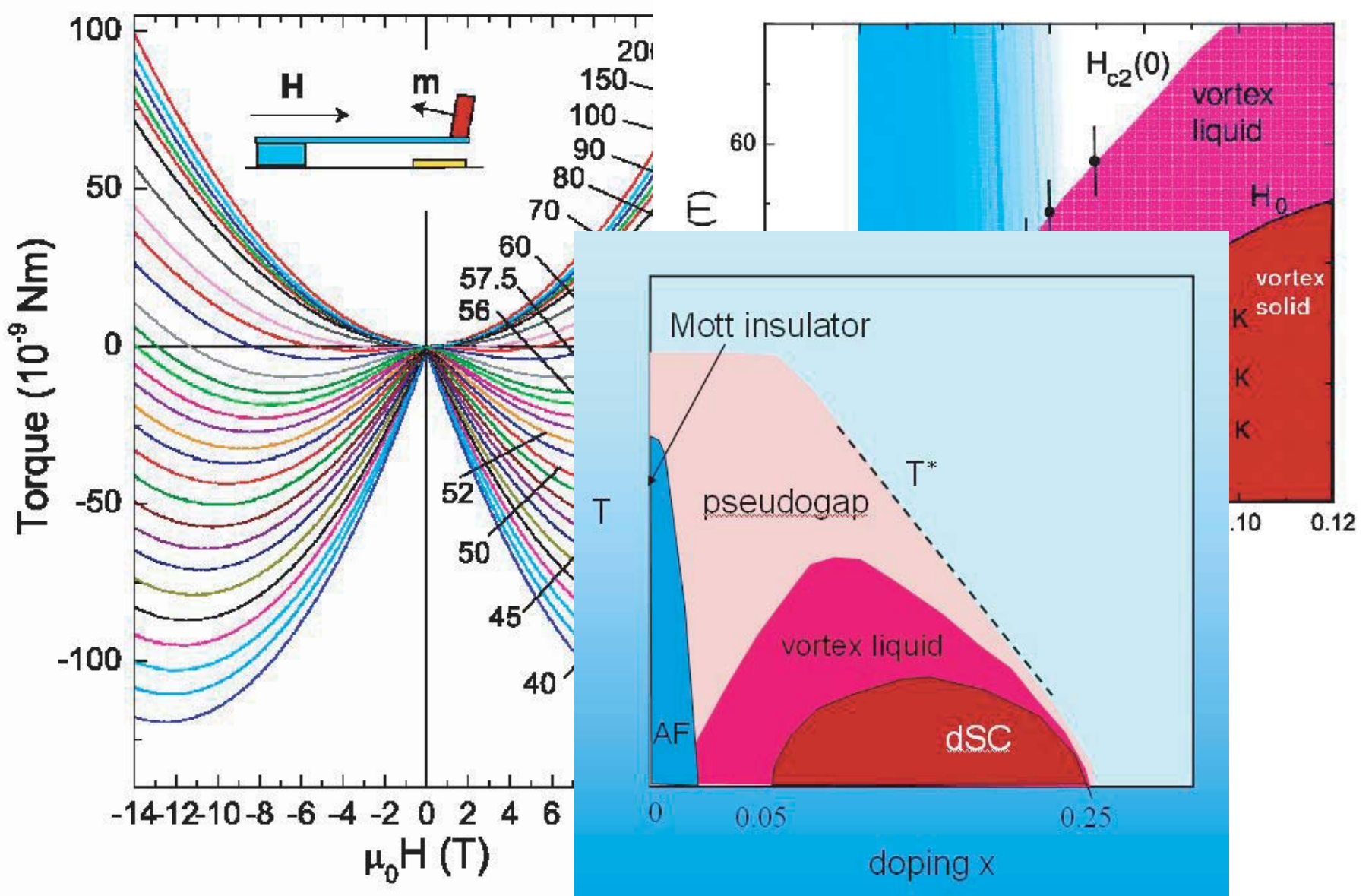


Boston University Physics Colloquium



The pseudogap and the phase diagram of the cuprate superconductors

Two decades after its serendipitous discovery, high-temperature superconductivity remains a deep and wonderful mystery. Why do electrons pair to form a condensate at such high temperatures? In the phase diagram of the cuprates (plotting critical temperature T_c vs doping x), the most prominent feature is the pseudogap state which envelops the superconducting "dome" extending to temperatures much higher than T_c . I will describe recent Nernst and torque magnetometry experiments which have revealed a key feature of the pseudogap state. Cooper pairing, with concomitant vortex excitations, persists above T_c , deep into the pseudogap state. The pairing strength is much stronger, and onsets at higher temperatures, than previously suspected. The results emphasize the importance of phase coherence and rigidity in the phase diagram.

Phuan Ong
Princeton University

September 25, 2007 (Tuesday) at 3:30 pm (Refreshments at 3:15 pm)
SCI 107, Metcalf Science Center, Boston University
Call: Winna Somers (wsomers@bu.edu) (617)353-9320
Host: Prof. Ophelia Tsui