



## QUANTUM OPTICS SEMINAR

**Title:** Dynamics and spectroscopy of laser-cooled calcium ions in a Penning trap

**Speaker:** Richard Hendricks, Imperial College, University of London

**Time:** Monday, February 13, 2006 at 13:15

**Place:** 1525-323

**Abstract:**

Penning traps use only static electric and magnetic fields to trap charged particles. The resulting absence of RF heating effects and the ability of superconducting magnets to generate ultrastable fields makes the Penning trap an interesting alternative to radiofrequency traps for quantum information processing (QIP) with trapped ions.

Unfortunately the large Zeeman splittings and relatively complicated motion make laser cooling in the Penning trap more difficult. I shall present the results of recent work on the laser cooling of calcium-40, an ion suitable for basic QIP, in which we show that these problems can be overcome. I shall also review briefly other work being carried out within the group at Imperial College.

Michael Drewsen