



# DESY Seminar

13 December 2005, 17:00, DESY Hörsaal

Ken Long (Imperial College, London)

## *MICE, in preparation of the Neutrino Factory*

Elegant experiments are being carried out, or are in preparation, to improve the precision with which the solar and atmospheric neutrino-oscillation parameters are known, and to attempt to make a first measurement of the small mixing angle  $\theta_{13}$ . The Neutrino Factory, an intense high-energy neutrino source based on a stored muon beam, is widely believed to yield a precision and sensitivity superior to other proposed second-generation facilities. Highlights of the exciting international R&D programmes which are designed to demonstrate the feasibility of the required techniques are reviewed. The phase-space compression (cooling) of the muon beam prior to acceleration and storage is needed to optimise performance. Traditional techniques cannot be employed to cool the beam because of the short muon lifetime. Ionisation cooling, a process in which the muon beam is passed through an alternating series of liquid-hydrogen absorbers and accelerating RF-cavities, is the technique proposed to cool the muon beam. The engineering demonstration of this technique will be provided by the international Muon Ionisation Cooling Experiment (MICE) which is being constructed at the Rutherford Appleton Laboratory (RAL). The status of the MICE cooling channel, the instrumentation, and the implementation at RAL are described, together with the predicted performance of the channel and the measurements that will be made.

- Tea and cookies will be served at 16:45 in the lobby.
- After the seminar there is a chance for private discussions with the speaker over wine and pretzels also in the lobby.