LECTURES
ON ANDERSON LOCALISATION
Provisional Announcement - Syllabus

- **30 April**
  Lecture 1. Introduction
  Qualitative discussion: Quantum Mechanics of a single particle in a random potential; Spectrum, Density of states, wave functions, Rate of Tunnelling, Diffusion and Localisation, Hopping Conductivity. Level Statistics. Integer Quantum Hall Effect.

  Elements of Theoretical Technology (very qualitatively): To average or not to average. Green's Functions, Conductivity.

- **2 May**
  Lecture 2.
  Band Tail. Density of states at negative energies

- **7 May**
  Lecture 3.
  Supersymmetric Non-linear σ-Model. Level Statistics

- **9 May**
  Lecture 4.
  Weak Localisation. Quantum Correction to Conductivity. Effect of Magnetic Field, Magnetic Impurities and Spin-Orbit Interaction.

- **13 May**
  Lecture 5.
  Scaling Theory for Localisation "Gang of Four" (E. Abrahams, P.W. Anderson, D.C. Liccardello and T.V. Ramakrishnan) Theory

- **15 May**
  Lecture 6.
  Pre-Localisation

- **21 May**
  Lecture 7.
  Integer Quantum Hall Effect

- **23 May**
  Lecture 8.
  Rate of Phase Breaking due to Electron-Electron Collisions