



INSTITUTE COLLOQUIUM

INDIAN INSTITUTE OF SCIENCE
BANGALORE

PROFESSOR D D SARMA
SOLID STATE AND STRUCTURAL CHEMISTRY UNIT

will deliver a lecture

on

PROBING THE FASCINATING WORLD OF ELECTRONS IN SOLIDS

On Tuesday, the 18TH April, 2000

at 4.00 PM in the Faculty Hall

DIRECTOR

will preside

All are cordially invited.

Coffee : 5.00 PM
Reception Hall

Prof. S S KRISHNAMURTHY
Convener

ABSTRACT

Physical and chemical properties of matter are almost entirely determined by the behaviour of electrons. Thus, understanding the properties of electrons in any system provides a microscopic insight into its properties. In a translationally invariant system, energy, momentum, symmetry and spin are the four quantum numbers that describe entirely the state of an electron. Electron spectroscopy in various forms can determine each of these quantities and therefore, plays a pivotal role in the study of physical and chemical properties of solids. After describing the general principals involved with the specific examples, I shall discuss the results of a few novel studies to illustrate how one obtains a detailed understanding of complex phenomena such as metal-insulator transitions, magnetic systems, and the electronic structure of clusters in the nanometer-size regime.