



Institute Colloquium

INDIAN INSTITUTE OF SCIENCE
BANGALORE

PROFESSOR BIMAN BAGCHI
SOLID STATE & STRUCTURAL CHEMISTRY UNIT

will deliver a lecture

on

ULTRAFAST CHEMICAL PHENOMENA: A FRONTIER OF PHYSICAL CHEMISTRY

on Tuesday, the 23rd September, 1997
at 4.00 PM in the Faculty Hall

PROFESSOR G PADMANABAN

Director, will preside

All are cordially invited.

Coffee : 5.00 P.M.
Reception Hall

Prof. S S KRISHNAMURTHY
Convener

ABSTRACT

Many elementary chemical processes occur with extreme rapidity. With the recent progress in ultrafast laser spectroscopy it has become possible to study these processes directly in the time domain -- this area has naturally been a subject of great international activity over the last decade. Many important discoveries have been made which have deepened our understanding of physical chemistry. For example, solvation energy relaxation of a nascent ion in water is nearly complete within 70 femtoseconds which is 100 times faster than the earlier estimates. This has led to a more accurate description of solvent effects in electron and proton transfer reactions. Ultrafast spectroscopy has also profoundly influenced many other areas including the chemical reaction dynamics in liquids, ionic conductivity in electrolyte solutions, rotational relaxation, vibrational energy and phase relaxations. In this Colloquium, I hope to address a few of these with examples drawn from our recent work.