

Dear All,

INDIAN INSTITUTE OF SCIENCE, BANGALORE

INSTITUTE COLLOQUIUM
(Chemical Sciences)

PROF. S. VASUDEVAN
Department of Inorganic and Physical Chemistry

will deliver a lecture

on

HOST-GUEST CHEMISTRY IN LAYERED SOLIDS

on Wednesday, November 5, 2008
at 4.00 pm in the Faculty Hall

THE DIRECTOR
will preside

All are cordially invited

Coffee/Tea: 5.00 pm
Venue: Reception Hall
Abstract

The insertion of guest molecules and polymers in layered inorganic host lattices is an attractive route for the synthesis of new materials as well as a source of new phenomena. The characteristic feature of these solids is that bonding interactions within a layer are much stronger than interactions between layers and as a consequence are able to accommodate guest molecules in their interlamellar space without major rearrangement of the solid structure or extensive bond breaking and reorganization. Insertion of guest species, or intercalation, can, in principle, lead to materials that combine the functionality and reactivity of the guest with the mechanical strength, thermal stability and electronic properties of the host and so possess properties that may not manifest in either component individually. In this talk I shall highlight our work on the insertion of guest molecules by intercalation into the galleries of the layered metal chalcogenophosphates and the layered double hydroxides. We show that by functionalizing the internal gallery walls of these solids either by anchoring surfactant chains or by grafting cyclodextrin cavities their host-guest chemistry can be extended to accommodate welcome and not so welcome guest species. Confinement affects properties of both host and guest and our research efforts have been to understand the nature of these changes and how they reflect on host-guest interactions
