FAPS-SPSI meet exhibited a different shade when it honoured **Dr. Anjani J. Varma**, Chair, Polymer Science and Engineering, CSIR-NCL, with a special seminar on his superannuation.

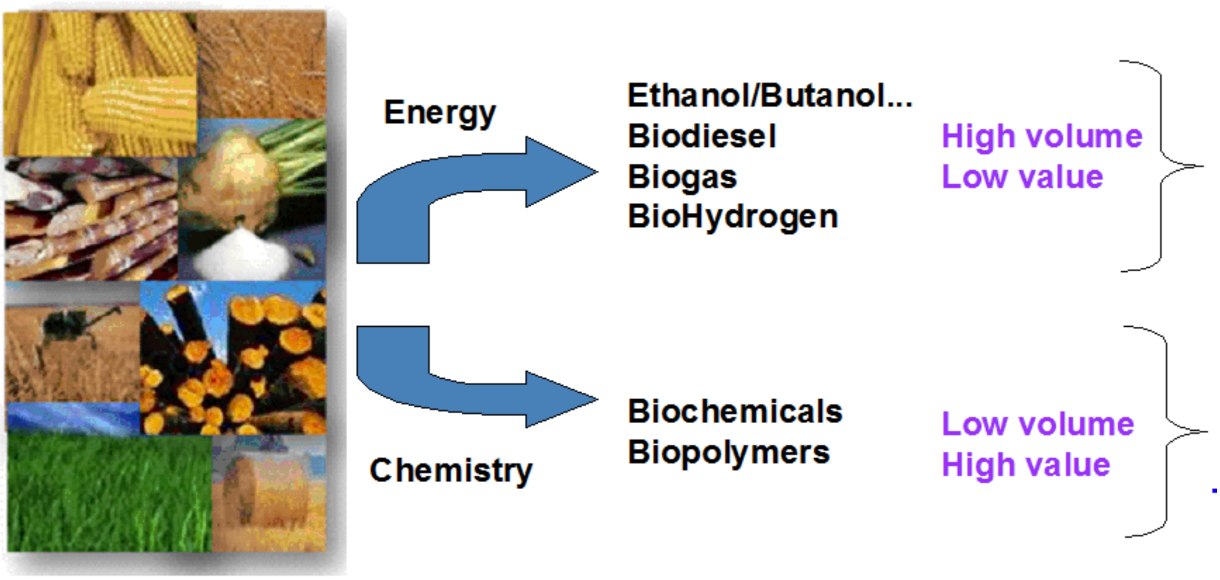
A Special Seminar in honour of
Dr. A. J. Varma,
Chair, Polymer Science and Engineering Division,
CSIR-National Chemical Laboratory, Pune

Chairman: **Dr. S. Sivaram**

Dr. Pramod Kumbhar,
Chief Technology Officer,
Praj Matrix, Pune

Biorefineries: Myth or Reality – The Praj Experience

Abstract: Biorefineries has become a buzz word in the renewable chemicals space.However, there are very few examples of operating biorefineries in true sense. There are number of myths about the biorefineries and the ground reality is much different than what one reads in academic journals. In this talk I will give a brief overview of various biorefineries and the challenges in operating them. Praj's experience in this field will be demonstrated with ongoing work at Praj-Matrix R&D centre in the space of bio refineries especially using lignocellulosic feed stocks.



Dr.Kadhiravan Shanmuganathan, CSIR-NCL, Pune Cellulose Nanofiber Composites as Mechanically Adaptive Brain Electrodes	

Abstract: Cellulose nanofibers derived from renewable biomass has garnered significant interest as a nanomaterial for realizing optically transparent papers, gas barrier films, electrically conducting nanocomposites etc. In this talk, I will demonstrate how the hydrogen bonding interactions between rigid cellulose nanofibers can be used a switch to create mechanically adaptive brain implant substrates. Inspired by the mechanical morphing behavior of the dermis of sea cucumbers, we have developed a series of nanocomposites comprising cellulose nanofibers as rigid fillers and poly(vinyl acetate) as host polymer. Upon exposure to simulated physiological conditions, these nanocomposites exhibit more than three orders of magnitude modulus change. The high contrast in elastic modulus, the temperature range (23 ℃ to 37 ℃) and time (2-15 m in) required for stiffness switching opens up broad range of applications for these nanocomposites as adaptive biomaterials. Preliminary investigations of these materials, as cortical electrodes, in rats show reduced immune response.

Tributes by Scientist-Colleagues

 Dr. Ashish Lele	 Dr. Prakash Wadgaonkar