THE SOCIETY FOR POLYMER SCIENCE, INDIA

PUNE CHAPTER

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Dear Friends,

We propose to hold a special Session during the forthcoming International Meeting on Advances in Polymer Science, October 30 and 31, 2014 in honour of Dr A.J. Varma, Chair and Chief Scientist, Polymer Science and Engineering Division, CSIR-National Chemical Laboratory, Pune. Dr Varma will be retiring on Novemebr 30, 2014 after a distinguished scientific career of over thirty years at CSIR-NCL.

The program is attached herewith.

We invite your active participation.

M. V. Badiger
Secretary, SPS Pune Chapter

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

Friday, October 31, 2014

Venue

Shanti Swarup Bhatnagar Lecture Theater,
Polymers and Advanced Materials Laboratory
National Chemical Laboratory, Pune

Chair: Dr. S. Sivaram

10.45 – 11.00	Introductory Remarks
11.00 – 11.30	Dr. Pramod Kumbhar, Chief Technology Officer, Praj Industries, Pune (Biorefineries: Myth or Reality – The Praj Experience)
11.30 – 12.00	Dr. Kadhiravan Shanmuganathan, CSIR-NCL, Pune (Cellulose Nanofiber Composites as Mechanically Adaptive Brain Electrodes)
12.00 – 12.05	Reflections: Dr. A.J. Varma
12.05 – 12.15	Conclusion

Dr. Anjanikumar J. Varma

Dr. Varma obtained Ph.D. Degree jointly from Syracuse University and the State University of New York, USA (1979). Subsequently, he spent a year as a post doctoral fellow at the State University of New York, USA. He joined the Polymer Science and Engineering Division of NCL in December 1980. During his stay at NCL, Dr. Varma rose from the position of a Scientist to occupy the Chair of Polymer Science and Engineering Division. Dr. Varma has made seminal contributions to the field of carbohydrate chemistry and bio-based polymers. These contributions have been acclaimed and brought him worldwide recognition. He is a renowned scientist in the field of carbohydrate chemistry and has served as a member of the editorial board of “Carbohydrate Polymers” UK and “Trends in Carbohydrate Research”, India.

Dr. Varma established a school of bio-based polymers in India at NCL. His group has developed and transferred several technologies to industries. He has received several honours, notable amongst them being the VASVIK Industrial Research Award for Chemical Technology and Special Achievement Award of the Association of Carbohydrate Chemists and Technologists of India. He has served as a member of several expert committees and has been invited to talk in many national and international conferences.

Dr. Varma has to his credit more than 100 research publications, and 12 Patents. Dr. Varma has mentored 7 Ph.D. students and several Master’s students.

Incidentally, Dr. Varma is the illustrious son of Dr. J. P. Varma who was also a distinguished scientist of NCL. Dr. J. P. Varma joined NCL at its very inception and worked in the Divisions of Organic Chemistry and Polymer Chemistry and retired in September 1977 as an Assistant Director.

Dr. Pramod Kumbhar

Chief Technology Officer
Praj Industries, Pune, India

Education & Experience

Ph.D Chemical Engineering, Institute of Chemical Technology, Mumbai
20 year experience in *Petrochemical Industry* (GE Plastics & Schenectady Chemicals, USA)

Research Interests

- Bio-fuel Technology
- Biorefineries

Awards & Honors

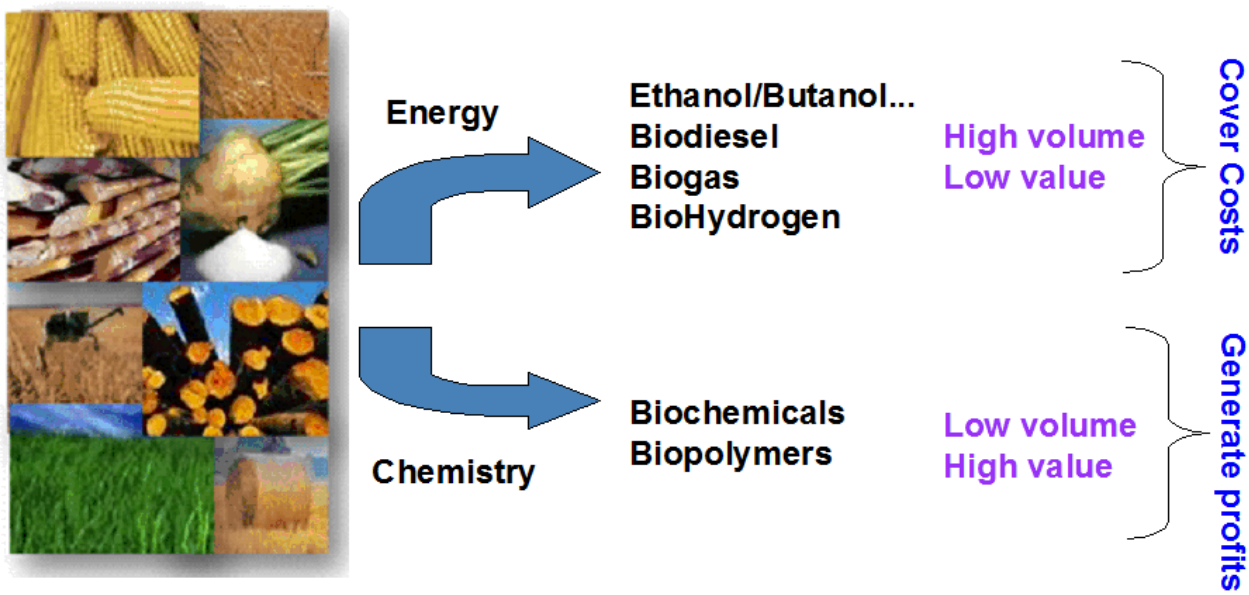
- Silver and Bronze medals from GE for patent filings
- ICI Process Development Award
- More than 25 publications and 20 US patents

Biorefineries : Myth or reality : The Praj experience

Dr. Pramod Kumbhar

Chief Technology Officer,
Praj Industries, Pune, India

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

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Education & Experience

B.Tech (1999) Textile Technology, Anna University, India
M.Sc (2006) Textile Chemistry, University of Massachusetts Dartmouth, USA
Ph.D (2010) Polymer Science and Engineering, Case Western Reserve University, USA

1999 – 2003 : Engineer, Lakshmi Machine Works Ltd, India
2010 – 2014 : Post-doctoral Fellow, The University of Texas at Austin, Texas, USA
2014 onwards: Scientist, CSIR – National Chemical Laboratory, India

Research Interests

- Biopolymer-based gels and nanocomposite materials
- Electrospinning and centrifugal force spinning
- Flame retardant coatings and composites
- Thermal and mechanical properties of composites

Awards & Honors

- *Innovation Incentive Fellowship* from Case Western Reserve University (2007)
- *Graduate Student Silver Award* from Materials Research Society (2009)
- Sponsorship to attend "*Green Chemistry and Sustainability*" from ACS (2009)
- *Joseph Breen Memorial Fellowship* from American Chemical Society (2012)
- Award for cost reduction suggestions from Lakshmi Machine Works Ltd, Kaizen.

Journal Editorial/Advisory Board Memberships

- Polymer Degradation and Stability
- Cellulose and Textile Research Journal
- Macromolecular Materials and Engineering
- Over 24 publications, 2 patents and 1 book chapter

Cellulose Nanofiber Composites as Mechanically Adaptive Brain Electrodes

Dr. Kadhiravan Shanmuganathan

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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.