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The Indian
Society of Rheology

Technical Workshops Series /Polymers/2012/06

Three-Day Intensive Workshop on Rheology of Paints & Emulsions

- Organized by The Indian Society of Rheology and Venture Center -

Learn	<ul style="list-style-type: none">• Introduction to the fundamentals of rheology, with special emphasis on the rheology of suspensions and emulsions.• Special applications, of direct relevance to the paints industry• Laboratory demonstrations• Analysis and interpretation of rheological data from experiments on paint samples
Organized by	<ul style="list-style-type: none">• Indian Society of Rheology• Venture Center – a Technology Business Incubator
Co-sponsored by	<ul style="list-style-type: none">• SPIRIT: Sustainable Polymer Industry through Research, Innovation and Training - A Centre of Excellence in Polymers at National Chemical Laboratory, Pune sponsored by the Department of Chemicals and Petrochemicals• Anton Paar
For whom	<ul style="list-style-type: none">• Paints, coatings, emulsions industry professionals in R&D, applications development, manufacturing, QC, QA functions• If seats are available, students, academics and researchers with interest in rheology/coatings shall be included• Maximum 20 seats; First-come-first-serve.
When	Monday-Wednesday December 10- 12, 2012
Where	<ul style="list-style-type: none">• Classroom sessions: Training Room, Venture Center, NCL Innovation Park, Dr. Homi Bhabha (Pashan) Road, Pune-411008• Lab sessions: Polymers and Advanced Materials Lab, NCL, Dr. Homi Bhabha (Pashan) Road, Pune-411008
Contact	Ms. Lipika Biswas Venture Center, 100, NCL Innovation Park, Dr. Homi Bhabha Road, Pune – 411008; Phone: +91-20-20250934; +91-20-25865877 Email: eventsdesk@venturecenter.co.in
Cost	<ul style="list-style-type: none">• Medium and large companies: Rs. 15,000/-• Micro and small enterprises/Individuals:Rs.8,000/-• Non-profit and academic institutions: Rs. 5,000/-• Students with valid ID card: Rs. 3,000/-



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Introduction

Rheology is one of the key characterization tools for the paints industry. An important and seemingly paradoxical requirement for paints is their non-drip characteristic (requiring high viscosity) co-existing with easy applicability (requiring low viscosity). Additional important rheological features of paints include adequate 'shelf life' and prevention of cracking. Indeed, modern day paints are complex multiphase fluids comprising multifunctional components whose complex interactions govern the rheological properties of the paint.

The workshop content will be tailored to meet the interests of participants from varying educational backgrounds, who are closely associated with R&D, manufacturing, QC and applications. Specifically, researchers and R&D managers from the paints industry, with interests in applying rheological techniques/methods to industrial processes will benefit from attending the workshop.

The workshop will be taught by foremost experts working on various aspects of rheology of suspensions and soft materials. The Venture Center and CSIR-NCL, which will be the venue for the workshops, have excellent classrooms and rheology labs with state of the art rheometers.

This workshop is meant to provide a general introduction to the fundamentals of rheology, with special emphasis on the rheology of suspensions and emulsions. Special applications, of direct relevance to the paints industry will be covered. The workshop will comprise classroom lectures, which will be interactive and will convey some of the excitement of doing rheology, as well as laboratory demonstrations, which will enable participants to understand standard test protocols and get familiar with apparatus, as well as analyze rheological data from experiments on paint samples. The workshop will also have 'group assignment' sessions in which participants will learn to interpret rheological data.

Course Outline

- Introduction to rheology and viscometry.
- Lab sessions introducing rheometers and standard experiments at PAML, NCL
- Introduction to the rheology of paints
- Rheology of suspensions and emulsions
- Lab sessions on rheology of paints, suspensions, emulsions
- Special topics: Ageing and cracking of paints
- Interpretation and analysis of rheological data

Schedule

Time	Session title		Lead	Venue
10th Dec 2012				
0900-0915	Registration			Foyer, Learning Center, Venture Center
0915-0930	Introduction to the workshop and faculty		AKL	Training room - Venture Center
0930-1100	Introduction to Rheology - 1		YMJ	Training room - Venture Center
1100-1130	Tea			Foyer area - Venture Center
1130-1300	Introduction to Rheology - 2		YMJ	Training room - Venture center
1300-1400	Lunch			Cafeteria - Venture Center
1400-1530	Introduction to Rheometry		CK	Training room - Venture center
1530-1600	Tea			Cafeteria, PAML
	Lab Session – Session 1 Group 1 (HVP)	Lab Session – Session 1 Group 2 (DG)	HVP/DG	Lab No. PAML, NCL
1730	End of day 1			
11th Dec 2012				
0930-1100	Introduction to Paints Rheology		DG	Training room - Venture Center
1100-1130	Tea and group photograph			Foyer area - Venture Center
1130-1300	Rheology of Suspensions & Emulsions - 1		TMT	Training room - Venture Center
1300-1400	Lunch			Cafeteria - Venture Center
1400-1530	Lab session – Session 2 Group 1 (HVP)	Lab Session – Session 2 Group 2 (DG)	HVP/ DG	Lab No. PAML, NCL
1530-1600	Tea/End of day 2			Cafeteria, PAML
12th Dec 2012				
0930-1030	Rheology of Suspensions & Emulsions - 2		TMT	Training room - Venture Center
1030-1100	Tea			Foyer area - Venture Center
1100-1200	Special Topic 1: Cracking of paints		TMT	Training room - Venture Center
1200-1300	Special Topic 2: Ageing of paints		YMJ	Training room - Venture Center
1300-1400	Lunch			Cafeteria - Venture Center
1400-1530	Mini-workshop: Data interpretation and analysis		CK	Training room - Venture Center
1530-1600	Tea			Foyer area - Venture Center
1600-1700	Q&A session <ul style="list-style-type: none"> • Specific problems of participants • Instrument and experiment selection for specific needs 		AKL & others	Training room - Venture Center
1700-1730	Workshop feedback, certificate distribution		VC team	Training room - Venture Center
1730	End of day 3			

Course Director

Dr. Ashish K Lele

Scientist, Complex Fluids & Polymer Engineering Group, NCL
 Head, SPIRIT – CoE on Polymers, NCL
 Chair, Polymers & Advanced Materials Laboratory, NCL
 President, Indian Society of Rheology

Dr. Ashish Lele received his bachelors degree in chemical engineering from the Institute of Chemical Technology in Mumbai in 1988 and Ph.D. from the University of Delaware in 1993. He has earlier received the Shanti Swarup Bhatnagar award in Engineering Science (2006), the Indian National Science Academy young scientist award (1998), and the CSIR young scientist award (1996). He is a fellow of the Indian National Academy of Engineering and of the Indian Academy of Science. Recently Dr. Lele, has been honoured with the Infosys Prize 2012, for his outstanding research contributions in the field of engineering and computer science. Dr. Lele is presently Principal Scientist at the Complex Fluids & Polymer Engineering Group, National Chemical Laboratory, Pune. He is currently working on rheology of complex fluids and polymer dynamics, hydrogels and associating polymers & structure-property relations in complex fluids.

Anchor Faculty

Dr. Chirag Kalelkar

Visiting Scientist, Complex Fluids & Polymer Engineering Group, NCL

Dr. Chirag Kalelkar did Ph.D. in Physics from Indian Institute of Science, Bangalore in 2006. He worked as Faculty Research Associate at the University of Maryland (2006-2008), Enhanced Post-doctoral Fellow at the National Chemical Laboratory (2008-2009), Visiting Post-doctoral Fellow at the Raman Research Institute (2010-2011) and as Research Associate at the Massachusetts Institute of Technology (2011-2012). Presently, Dr Kalelkar is a Professor of the Academy of Scientific and Innovative Research (AcSIR) at NCL. Dr Kalelkar works on rheology of complex fluids and fluid dynamics of high Reynolds number flows.


Prof. Yogesh Joshi

Associate Professor, Department of Chemical Engineering, IIT – Kanpur

Dr. Yogesh Joshi did B.E. in Polymer Engineering from Pune University in 1996 and Ph.D. in Chemical Engineering from National Chemical Laboratory Pune and Indian Institute of Technology Bombay in 2001. Subsequently he joined Benjamin Levich Institute, New York for post-doctoral studies. Dr. Joshi joined Department of Chemical Engineering, Indian Institute of Technology Kanpur in 2004, where presently he is an Associate Professor. Dr Joshi's group works on rheology of soft materials, Electrorheology, heat and mass transport through soft materials and phase behavior of clay suspensions.

	<p>Prof. Mahesh Tirumkudulu Associate Professor, Department of Chemical Engineering, IIT- Bombay</p> <p>Dr. Mahesh Tirumkudulu did B.Tech. in Chemical Engineering from Indian Institute of Technology Madras in 1995 and Ph.D. in Chemical Engineering from City University of New York in 2001. Subsequently he joined Princeton University for post-doctoral studies. Dr. Tirumkudulu joined Department of Chemical Engineering, Indian Institute of Technology Bombay in 2003, where presently he is an Associate Professor. Dr. Tirumkudulu's group works on fluid mechanics, rheology of suspensions, Physics of film formation and cracking in paints and coatings, and Microfluidics.</p>
	<p>Mr. Dharmesh Gala Product Manager- Material Characterization, Anton Paar India Pvt. Ltd.</p> <p>Mr. Dharmesh Gala did Diploma in Radio Engineering in 1989 & B.E. in Electronics & Telecom in 1994 from Cusrow Wadia Institute, Pune. He Joined Diano Corporation as Service Engineer for XRD/XRF in 1989 and in 1995 Chromline Equipments, Mumbai (Rheometrics Scientific) where he involved initially in Service of Rheometers & later Technical Product Management in Rheometry Instrumentation. In 2005 he, took over as Export Manager of Reologica Instrument's Rheometers in Sweden & finally since 2009 he is Product Manager handling Rheometer, SAXS & Electro-Kinetic Analysis at Anton Paar India Pvt Ltd, Gurgaon.</p>
	<p>Mr. Harshawardhan Pol Scientist, Complex Fluids & Polymer Engineering Group, NCL</p> <p>Mr. Harshawardhan Pol did B.E. in Polymer Engineering from Maharashtra Institute of Technology Pune followed by M.S. in Materials Science and Engineering from Clemson University, South Carolina. Subsequently he worked at Dow Chemicals in Michigan for two years before joining the Polymer Science and Engineering Division of the National Chemical Laboratory, Pune where he is presently a Senior Scientist. Mr. Pol works on understanding the role of macromolecular architecture on the rheology and processing of polymer melts, and on industrial projects involving development of new polymeric materials based on detailed understanding of structure-property relations.</p>



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Course includes

- Course notes (hard copy) including slides, case studies, application notes
- Lab demo
- Access to restricted website with online compilation of resources
- One-on-one feedback on data interpretation exercise
- Certificate of Participation issued by Venture Center and Indian Society of Rheology
- Course includes tea and lunch at Venture Center cafeteria

*** Please note the participants will have to arrange for their own travel, local transport, accommodation and dinners.**



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The Indian Society of Rheology

About the Organizers	
	<p>About Indian Society of Rheology The Indian Society of Rheology has been created to promote closer ties between the rheology communities in Indian academia/R&D institutes and Indian industry, to assist in the development of human resources in the area of rheology within the country, to support the activities of the complex fluids community in India and to establish formal links with other Societies of Rheology across the globe.</p>
	<p>About Venture Center Entrepreneurship Development Center (Venture Center) – a CSIR initiative – is a Section 25 company hosted by the National Chemical Laboratory, Pune. Venture Center strives to nucleate and nurture technology and knowledge-based enterprises by leveraging the scientific and engineering competencies of the institutions in the Pune region in India. The Venture Center is a technology business incubator supported by the Department of Science & Technology's National Science & Technology Entrepreneurship Development Board (DST-NSTEDB). Venture Center's focuses on technology enterprises offering products and services exploiting scientific expertise in the areas of materials, chemicals and biological sciences & engineering. For more information, visit http://www.venturecenter.co.in/</p>

About the Sponsors	
	<p>About SPIRIT at National Chemical Laboratory, Pune SPIRIT stands for Sustainable Polymer Industry through Research, Innovation and Training. SPIRIT is a Centre of Excellence in Polymers sponsored by the Department of Chemicals and Petrochemicals, Government of India, at the CSIR-National Chemical Laboratory, Pune. More information: http://www.pamlab.org/spirit/</p>
	<p>About Anton Paar Anton Paar GmbH produces high-end measuring and laboratory instruments for industry and research. It is the world leader in the measurement of density, concentration and CO₂ and in the field of Rheometry. Anton Paar GmbH is owned by the charitable Santner Foundation. More information: http://www.anton-paar.com/</p>