



Australian Society of Rheology

2014 Rheology Lecture Series

The Australian Society of Rheology (ASR) presents a series of lectures that is open to anyone interested in the flow and deformation of matter. The next lecture in the series is at Edith Cowan University.

DATE: Thursday, 15th May 2014

TIME: 5:30–6:00 pm: Refreshments (nibbles and drinks)
6:00–7:00 pm: Presentation

SPEAKERS:

Dr. Phillip Fawell (CSIRO)

Dr. Alex Lubansky (Edith Cowan University)

VENUE: [Edith Cowan University](#)

Room 21.202, Building 21,

Edith Cowan University,

270 Joondalup Drive, Joondalup, WA 6027

Transport and Parking

Edith Cowan University is located in Joondalup. Public transport is via train to Joondalup Station and then either the free Red or Blue CAT. Car parking is available in the visitor parking area for \$1 per hour. The closest visitor parking to building 21 is near the sports centre. A campus and parking map is available at

http://www.ecu.edu.au/_data/assets/pdf_file/0014/210434/Joondalup-Campus-map.pdf

Abstracts:

1. Dr. Phillip Fawell

CSIRO Minerals Down Under Flagship, Waterford, WA

Title: Flocculant concentration effects on flocculation in mineral processing

Abstract: The study of flocculation in mineral processing is complicated by the viscous nature of the aqueous solutions formed from high molecular weight acrylamide/acrylate copolymer flocculants. Comparisons of flocculant products suffer when physical mixing issues aren't separated from "chemistry issues" associated with surfaces, adsorption and aggregate growth. In full-scale applications, excessively high flocculant concentrations can contribute to poor flocculation even in turbulent feedwells. This presentation will describe some results from a range of techniques that have been applied to better understand this problem, towards capturing such effects in computational fluid dynamics (CFD) modelling. This will include flocculation kinetics measurements, ultrasonic velocity profiling (UVP) and electrical resistance tomography (ERT). Recent progress in

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the AMIRA P266G “Improving Thickener Technology” project in CFD modeling of concentrated flocculant dosing into turbulent flow will be briefly discussed.

Biography: Dr. Fawell completed a Bachelor of Science degree (chemistry) at the University of Western Australia in 1983, before transferring to Murdoch University for his Honours and PhD studies. After postdoctoral positions with CSIRO and the Materials Research Laboratory (DSTO, Melbourne), he joined the Parker Centre in Perth in 1993, developing techniques for flocculant and aggregate characterization. He also became part of the AMIRA P266A “Improving Thickener Technology” Project and involved in a number of the associated company-specific studies. He took leadership of all flocculation studies in P266D, became Research Coordinator for P266F and currently leads the P266G project, as well as being responsible for technology transfer. In the latter role, he has conducted thickening appraisals and workshops around the world, and has created an online thickener self-appraisal tool for project sponsors.

2. Dr. Alex Lubansky

School of Engineering, Edith Cowan University, WA

Title: Can microfluidic contractions be used as planar extensional rheometers? An analytical analysis

Abstract: Measuring the extensional rheology of a fluid reliably, simply and cheaply has presented a long-standing challenge. While some techniques have recently gained popularity and acceptance for measuring the uniaxial extensional viscosity, such as CaBER or FISER, determining the planar extensional rheology has proven more challenging. Recent efforts have focused on using microfluidic contractions for testing, although there remains outstanding questions surrounding the appropriate analysis. In this presentation, I will discuss the importance and usefulness of extensional rheology measurements, and will highlight some of the important considerations that can take place when measuring extensional rheology of dilute and semi-dilute polymeric solutions.

Biography: Dr. Lubansky completed a combined BEng (Hons) in Chemical Engineering and a BSc in Mathematics at the University of Melbourne. He then completed a PhD on extensional rheology under the supervision of David Boger and Justin Cooper-White. He had a post-doctoral position at Swansea University with Rhodri Williams punctuated by a secondment to Haemair Ltd where he worked as a Research Engineer developing a prosthetic lung. He then worked as a lecturer at the University of Oxford as well as working as a lecturer at St Hilda’s College and St Edmund Hall. In 2012 he returned to Australia as Edith Cowan University are starting a new Chemical Engineering program and he is a senior lecturer there.