

Outputs Theme 4 2002

Publications:

1. Khrapitchev, A.A., Han, S., Stapf, S., and B. Blümich, A., Spectrally resolved velocity exchange spectroscopy of two-phase flow, *Journal of Magnetic Resonance*, **159**, 36-45, (2002).
2. Bokern, D.G, Ducker, W.A.C, Hunter, K.A and M^cGrath, K.M. Surface imaging of a natural mineral surface using scanning probe microscopy, *Journal of Crystal Growth* **246** (1-2): 139-149 (2002).
3. Dickinson, S.R, Henderson, G.E. and M^cGrath, K.M. Controlling the kinetic versus thermodynamic crystallisation of calcium carbonate *Journal of Crystal Growth* **244** (3-4): 369-378 (2002).
4. Fischer, E., Callaghan, P. T., Heatley, F. and Scott, J. E. Shear flow affects secondary and tertiary structures in hyaluronan solution as shown by rheo-NMR, *J. Mol. Structure*, **602-603**, 303-311 (2002)
5. Cormier, R.J. and Callaghan, P.T. Molecular weight dependence of segmental alignment in a sheared polymer melt: A Deuterium NMR Investigation *J. Chem. Phys.* **116**, 10020-10029 (2002).
6. Khrapitchev, A. A., Stapf, S. and Callaghan, P. T. NMR visualisation of displacement correlations for flow in porous media *Phys Rev E* **66**, 051203-1 to 051203-16.(2002).
7. Callaghan, P.T. and Komlosh, M.E. Locally anisotropic motion in a macroscopically isotropic system: displacement correlations measured using double Pulsed Gradient Spin Echo NMR, *Magnetic Resonance in Chemistry* **40**, S15-S19, (2002).
8. Callaghan, P.T. Spectroscopy scales new peaks, *Physics World*, **15**, 23-24 (2002).

Conference Presentations

1. K. McGrath, "Can we tell anything about the stability of an emulsion from its microstructure?" *3rd World congress on Emulsions*, Lyon, France, September 2002. (oral)
2. K. McGrath, "Biomineralisation" *Conference on Physical Chemistry 2002*, Christchurch, New Zealand, February 2002. (oral)
3. K. McGrath, "Control of emulsion microstructure through energy input: formation of a bicontinuous emulsion" *4th Liquid Matter Conference Konstanz*, Germany, September 2002. (poster)

Invited Talks:

1. “*Pattern control through surfactant self-assembly*” Inaugural speaker for The MacDiarmid Institute for Advanced Materials and Nanotechnology – A New Zealand Centre of Research Excellence. Dr Kate McGrath.
2. Dunedin, New Zealand – video conferenced to University of Victoria, Wellington and the University of Canterbury May 2002 “*Materials synthesis - what can be learnt from biomineralisation?*” Dr Kate McGrath.
3. Meeting of the Rotorua Branch of the Royal Society Rotorua, New Zealand October 2002 “*Emulsion microstructure – does it control stability?*” Dr Kate McGrath.
4. *Departmental Talk*, School of Chemical and Physical Sciences, Victoria University of Wellington, New Zealand October 2002. Dr Kate McGrath.
5. RACI/NZCI Conference on Physical Chemistry”, Christchurch, NZ. “*Rheology and NMR: a new partnership*” Feb 4th 2002. P.T. Callaghan.
6. ANZMAG Conference , Taupo, NZ. “*The surprising utility of magnetic field gradients*” Feb 24th 2002. P.T. Callaghan.
7. ITP Complex fluids, Santa Barbara “*NMR measurement of polymer alignment under deformational flow*” April 2nd 2002. P.T. Callaghan.
8. ITP Complex fluids, Santa Barbara “*What can NMR tell us about shear banding and ordering*” April 17th 2002. P.T. Callaghan.
9. ENC, Asilomar “*NMR Microscopy and soft matter*” April 15th 2002. P.T. Callaghan
10. CIT, SSF Programme in Colloid and Interface Technology, Fiskbackskil, Sweden “*NMR Microscopy and soft matter*” August 12th 2002. P.T. Callaghan.
11. 6th International Meeting on Magnetic Resonance in porous media, Ulm, Germany. “*The use of the second dimension in PGSE NMR studies of porous media*” September 12th 2002. P.T. Callaghan

Industry Reports:

1. P.T. Callaghan and S. Godefroy, “*NMR relaxometry of cheese*”, to Fonterra Research (confidential)

Talks or Interactions with Community Groups or Schools:

1. P.T. Callaghan: numerous talks to, *inter alia*, Wairarapa Chamber of Commerce, Science Communicators, Jack Shallcrass Foundation, Wellington Chemistry Teachers.

Patents:

1. P.T. Callaghan, *NMR Apparatus* NZ Patent filed 520114

Awards, Medals, Fellowships

1. P.T. Callaghan, ANZMAG Medal

Visitors:

1. Professor Yang Xia Department of Physics, Oakland University, Michigan, USA
2. Jan 2002-April 2002, (hosted by Prof Paul Callaghan).
3. Dr Sigfried Stapf, RWTH Aachen, Germany, Dec 2001-April 2002 (hosted by Prof Paul Callaghan)
4. Dr Suzanne Fielding, Department of Physics and Astronomy, University of Leeds, UK
5. Nov 2002-Jan 2003, (hosted by Prof Paul Callaghan).
6. Ms Helena Wassenius, Department of Chemistry, Chalmers University, Gothenberg, Sweden, November 2002-March 2003, (hosted by Prof Paul Callaghan).
7. Professor Mark Warner, University of Cambridge, UK (hosted by Prof Paul Callaghan).

