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Out and about

Antonio Feteira and **Derek Sinclair** both attended the 11th IMF (International Meeting on Ferroelectrics) held at Foz do Iguassu in Brazil Sept 5-9th. Antonio presented a paper on the microwave dielectric properties of $\text{Ca}_{1-x}\text{Y}_x\text{Ti}_{1-x}\text{Al}_x\text{O}_3$ which is a joint project between the CCL (Feteira/Sinclair) and Professor Mike Lanagan at Penn State University. Derek gave a talk about Equivalent circuit modelling of relaxor ferroelectric La-doped BaTiO_3 , joint work with Tony West.

Paul Bingham, **Bill Lee**, **Neil Hyatt**, **Neil Milestone**, **Martin Stennett**, **J-P Gorce** and **Haji Kinoshita**, attended the 29th International Symposium on the Scientific Basis for Nuclear Waste Management in Ghent, Belgium from 12-16 September. Paul presented a poster entitled "Immobilisation of Simulated Plutonium-Contaminated Material in Phosphate Glass: An Initial Scoping Study". The poster was well received; Paul made several contacts and had a number of very useful discussions with eminent figures in the field. The conference tour, which was very interesting, went to the underground "HADES" laboratories, situated in a boom clay deposit at a depth of several hundred metres at SCK.CEN in Mol.

Paul Bingham and **Russell Hand** attended the Society of Glass Technology's Annual Meeting in Sheffield from 7-10 September. Paul gave an oral presentation "Durable phosphate glasses for waste immobilisation". Russell gave a presentation entitled "Tomorrow's history - vitrification of harmful waste". The meeting was very well attended by both academia and industry, and was very successful.

Anita Mistry attended the "Novel Applications of Surface Modification" conference in Chester (18 - 21st September), organised by the Institute of Physics. There was a broad theme ranging from developments in hard coatings (such as diamond-like carbon), polymeric coatings for flexible displays to coatings for biological applications, as well as the technology required to achieve this. The challenges of characterising thin, multi-layered and functional films was also addressed. Anita won one of the poster prizes for her poster entitled "Plasma Deposition of Organometallic Monomers on Stainless Steel".

Russell Hand presented an invited paper entitled "Nano-indentation of silicate glasses" at the 3rd International Workshop on Flow and Fracture of Advanced Glasses held at the Pennsylvania State University from 2nd to 5th October. The paper included very recent results detailing genuine (sub- 20nm depth) indentations on fused silica including possible evidence of the effect of surface hydration on the surface mechanical properties.

Lisa Gillie, **Nik Reeves**, **Gabrielle Miles** and **Ritesh Rawal** from the CCL all enjoyed a productive visit to the Paul Scherrer Institut (PSI), in Villigen (near Zurich),

Switzerland in September. They were working on the HRPT (High-Resolution Powder Diffractometer for Thermal Neutrons) at the SINQ facility, conducting neutron diffraction experiments on a variety of novel ceramic powders, including some lithium niobates and molybdates at ambient and high temperatures, as well as La- and Nb-doped barium titanate. More information on this worthwhile instrument can be found at <http://sinq.web.psi.ch/sinq/instr/hrpt/index.html> .

Publications

E.J. Abram, C.A. Kirk, D.C. Sinclair and A.R. West, Synthesis and characterisation of lanthanum germanate-based apatite phases, *Solid State Ionics*, **176** (2005) 1941-1947.

A. Feteira, D.C. Sinclair and M.T. Lanagan, Structure and Microwave Dielectric Properties of $\text{Ca}_{1-x}\text{Y}_x\text{Ti}_{1-x}\text{Al}_x\text{O}_3$ (CYTA) Ceramics, *Journal of Materials Research*, **20** [9] (2005) 2391-2399.

D. I. Woodward, J. Knudsen & I. M. Reaney. "Review of the crystal and domain structures in the $\text{PbZr}_x\text{Ti}_{1-x}\text{O}_3$ solid solution". *Phys. Rev. B.* **72** (10), 104110, 1st Sept 2005.

Paul Bingham was principal author on "Mossbauer studies of phosphate glasses for the immobilisation of toxic and nuclear wastes", by P. A. Bingham, S. D. Forder, R. J. Hand and A. Lavaysierre, which was presented by co-author Dr. Sue Forder at ICAME'05 (The International Conference on Applications of the Mossbauer Effect 2005) in Montpellier, France from 5-9 September.

Funding success

Congratulations to Shaowei Zhang who has been awarded £10 000 from the Proof of Concept Fund. Shaowei's project aims to develop a novel and low cost way to make nanoparticles.

Good luck

Good luck to Dave Woodward and Lisa Gillie who are leaving the CCL to take new jobs elsewhere. Dave will be leaving the CCL in October to go and work as a research and development engineer at ITM power, Sheffield. Lisa, who left at the end of September, has taken up a lectureship at the University of Huddersfield.

Departmental Industrial Seminars

The following Industrial Seminars arranged in the Department may be of interest to you:

18 October Dr I Smith, Programme Support Manager, Pilkington Group Research "Applied Materials Research at Pilkingtons"

8 November Dr A Hosty, Chief Executive Officer, Morgan Technical Ceramics
Title to be confirmed

15 November Dr E G Shahidi, Head of Design and R & D, Advanced Composites Group Ltd
"Composites in Industry"

22 November Dr P T McGrail, Cytec Fiberite Ltd, Wilton R & D Group
"Composites Matrices"

7 February Prof P T Curtis, Technical Manager, Materials & Structures, DSTL
"Advanced Composite Materials in Aerospace Applications"

21 February Dr Nick Kirk, Research Manager, Glass Technology Services
"The Use of Recycled Glass for Container Glass Manufacturer"

Guest Editor of Special Issue

Bill Lee has guest edited a special issue of Advances in Applied Ceramics. The issue will contain several CCL related reviews and an Editorial by Bill. The Issue will be out in December.

Guest Editorial:

The contribution of ceramics to environmental clean up.

Articles:

- Immobilisation of radioactive waste in glasses, glass composite materials and ceramics, W. E. Lee, M. I. Ojovan, M. C. Stennett and N. C. Hyatt
- Vitrification of toxic wastes: a brief review, P. A. Bingham and R. J. Hand
- Reactions in cement encapsulated nuclear wastes: need for a toolbox of different cement types, N. B. Milestone

Article in NiA newsletter

Bill Lee has co-authored an article with Robin Grimes that appears in the Nuclear Industry Association newsletter. The article, entitled "Waste - dealing with the legacy", made up part of an issue circulated at The Labour Party Conference in Brighton last week.

Best Wishes

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