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The logo for the Ceramics and Composites Laboratory (CCL) at The University of Sheffield. It features the letters 'CCL' in a large, bold, black sans-serif font, centered between two horizontal yellow bars.

Ceramics and Composites Laboratory  
The University of Sheffield

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## Publications

A.C.Johnson, F.M.Zhao, S.A.Hayes, F.R.Jones. "Influence of a matrix crack on stress transfer to an  $\alpha$ -alumina fibre in epoxy resin using FEA and photoelasticity," *Composites Science and Technology*, 66 (2006) 2023-2029.

Zheng H, Woodward DI, Gillie L, Reaney IM, Iddles D "Structure and microwave dielectric properties of BaLa<sub>4</sub>Ti<sub>4</sub>O<sub>15</sub>" *J. Phys-Condensed Mat* 18 (31): 7051-7062 AUG 9 2006

Bandyopadhyay-Ghosh S, Reaney IM, Johnson A, et al. "Castability and biocompatibility of novel fluorcanasite glass-ceramics" 18th International Symposium on Ceramics in Medicine, DEC 05-08, 2005 BIOCERAMICS 18, PTS 1 AND 2 : 293-296, 2006

West AR, "Inorganic functional materials: Optimization of properties by structural and compositional control" *CHEMICAL RECORD* 6 (4): 206-216 2006

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## Out and about

Frank Jones attended ACUN on Composites 2006 (Sydney, Australia) from the 11 - 14th July 2006. He gave an invited keynote lecture entitled "The quantification of interfacial stress-transfer around fibre-breaks using phase-stepped photoelasticity,"

Frank Jones and Zheng Liu attended the 12th European Conference on Composite materials (ECCM12) (Biarritz, France) (29/08-1/09 2006). Zheng gave a talk entitled "Multiscale interfacial correlation of single fibre and high volume fraction composites with a functional nanoscale interphase of varying thickness". Frank gave the following 4 talks: "Stress transfer through a nanoscale interphase in a fibre composite", "Photoelastic measurement of thermal residual shear stresses in single fibre composites", "Yielding behaviour of a model epoxy resin matrix for fibre reinforced composites", and "Differentiation of silane adsorption onto model E-glass surfaces from solutions mixed of amino and glycidyl silanes".

Tony West gave the Opening keynote lecture at the Eighth European Conference on Solid State Chemistry, Pardubice, Czech Republic, 25-29 September 2006. His lecture was entitled "Recent developments in homogeneous and heterogeneous electroceramics".

Kazem Ghanbari Ahari attended the 26th Cement and Concrete Science International Conference organised by Cement and Concrete Committee Group of IoM<sup>3</sup>, held at Sheffield Hallam University 11 -12 September 2006. The oral presentations started after welcome by Professor John Sharp and Dr Leon Black and covered the following topics:

1. Hydration studies
2. Lime based systems
3. Microstructure and morphology

4. Geopolymers
5. Novel blended cements
6. Miscellaneous studies

Kazem presented a talk on “Hydrothermal Processing of Calcium Silicate Based Materials” during the “lime based systems” session, which led to some useful comments and discussion.

Russell Hand, Paul Bingham and Oliver Hannant attended the 8th European Society of Glass Technology Conference, held in Sunderland from the 10th - 14th September, giving the following presentations and posters:

- R. J. Hand - The Ballidon glass burial experiment: 36 years on
- P. A. Bingham, R. J. Hand - The effects of P2O5 addition on the properties of silicate glasses with commercial significance
- P. A. Bingham, N. J. Cassingham, R. J. Hand, S. D. Forder - Property modification of a high-level nuclear waste borosilicate glass through the addition of Fe2O3
- O. Hannant, P. A. Bingham, S. D. Forder, R. J. Hand - A Mössbauer study of iron-rich aluminosilicate glasses

The conference was well attended with an estimated 300 delegates. This, coupled with the high quality of presentations, made for an excellent conference. Glass blowing demonstrations at the nearby National Glass Centre were particularly popular and Workshops held before and after the main programme provided excellent sessions on optical properties, biomaterials, glass structure and sol-gel glasses.

Nik Reeves and Denis Pasero spent the following dates at DESY , Hamburg, conducting the following experiments:

13-18 sept: in-situ Synchrotron XRD on Li-batteries

21-26 sept: in-situ XAS on Li-batteries; ex-situ XAS

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### Visitors to the CCL

Dr Stefanie Feih, RMIT Research Fellow from the Composites CRC in Australia, visited the CCL on the 27<sup>th</sup> September and gave a talk on "Strength modelling of glass-fibre polymer composites in fire".

Prof Carlo Pantano, Director of the Institute for Materials Research, Penn State, USA visited the CCL on the 14<sup>th</sup> September. Whilst here Carlo spent time with several members of the CCL.

Dr. Morihiro Saito from Tokyo University of Science visited the CCL on 4th September

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### Changes to the processing of EPSRC grants: advice from EPSRC

The EPSRC has announced some changes to their grants processing system which will affect the way they handle proposals. From 15 September 2006, they will delay processing a proposal until they have received all the documentation from you.

If you want to make a change to a proposal or the attached documentation, they will ask you to withdraw the proposal, make the changes then resubmit it as a new proposal. You will be able to copy across all the details from the Je-S forms that you have already filled in to the new proposal, but you will need to attach all the supporting documentation again.

There will be further developments to Je-S and the way in which the EPSRC process proposals later in the year. Information about the changes will be on their website.

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### Next 1-DRAC meeting

The next 1-DRAC meeting will be held on the 9<sup>th</sup> November at the School of Materials, University of Manchester. The event will feature two speakers from Sheffield University: Mark Rainforth “Focused ion beam studies of worn ceramic surfaces” and Claire Utton “Material properties and microstructural evolution of composite cements used for nuclear waste management”.

Other talks include:

- Paul Warren “High temperature damage to float glass”
- Jonathan Gittings “Fabrication and properties of novel open porous calcium phosphate bioceramics”
- David Hall “Micro-mechanics of domain switching in ferroelectrics”
- Rolland Travis “Solid oxide fuel cell development”
- Aldo Boccaccini “EPD of nanoparticles/nanotubes/bioactive coatings”

There will be a small charge associated with the event to cover lunch. If you wish to attend please email [Ping.Xiao@manchester.ac.uk](mailto:Ping.Xiao@manchester.ac.uk).

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### Energy saving

We can all help reduce the high environmental costs of energy use in the Department by following a few simple tips:

- switch off your lights when daylight is adequate or if the room is unoccupied
- switching off your computer monitor at lunchtimes or when you are away from your desk will save over two-thirds of the energy consumed - please note that screensavers DO NOT save energy
- be aware of your computer's energy saving features such as standby and auto-off facilities

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### Funding awarded

Paul Bingham has been awarded £700 by the Worshipful Company of Armourers and Braziers to travel to Brookhaven National Laboratory in November to carry out collaborative research entitled “Sulphur K-edge XAS studies of phosphate glasses for the immobilization of sulphur-containing wastes”. Andrew Connelly will accompany Paul on the visit.

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### Good luck

Good luck to Gabi Miles who is leaving the CCL this month to take a course in Journalism at Sheffield University. I hope you will all join me in wishing Gabi the best of luck with her studies and future chosen career.

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Best Wishes  
Helen Fletcher

[H.L.Fletcher@sheffield.ac.uk](mailto:H.L.Fletcher@sheffield.ac.uk)

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