

National Lecture Competition and Niobium awards

The National Lecture Competition, sponsored by the Institute with support from the Worshipful Company of Armourers and Brasiers, was held recently at the Armourers' Hall in London. The event aims to provide a friendly atmosphere in which young materials scientists and engineers can develop their presentation skills by addressing an informed audience. This year, as always, the emphasis was on presentation skills rather than technical expertise with each speaker giving a 15-minute presentation, after which they answered questions from each of the three judges.

First to give his presentation was Daniel Boyd of the University of Limerick, representing the Northern Ireland Region. His presentation on revolutionary cements for skeletal applications – aluminium-free glass ionomer cements – pointed out that current glass polyalkenoate cements have aluminium as a principal constituent. Although small amounts are used in dentistry, the large amounts needed for skeletal applications render them unsuitable. He spoke of developing an aluminium-free glass cement that provided the necessary strength and adhesion, although it appears to be considerably toxic. According to Boyd, this might be due to the inherent limitations of the toxicity test method. His whole presentation was marked by an ability to put across a complex topic with clarity and humour. The judges recognised this and placed him in joint third



Jonathan Harris (right) receives his awards from Dr Graham Woodrow (left) and Richard Crabb, Master of the Worshipful Company of Armourers and Brasiers.

place, making him the recipient of half the third place prize of £200.

Sharing joint third place was Charles Ho from the Nanyang Technological University in Singapore who had the difficult job of giving his presentation last. Representing the 'overseas' entries, Ho gave an elegant presentation on the development of waveguide materials using the sol-gel process, concentrating on GeO₂-doped silica thin films used in the telecommunications industry. According to Ho, a simpler process has been developed to control the reaction rate of germanium sol-gel precursor in a silicate sol. The result is a thin film with low optical absorption and a high refractive index.

Second place and £400 went to Mark Levy of Imperial College, London, representing the South East Region, for his presentation on composite defect maps for A³⁺B³⁺O₃ perovskites. According to Levy, perovskites are something of a chameleon ceramic, with the

oxygen atoms changing the charge composition and distorting the lattice, making the shape hard to quantify (see p20-21 in this issue for more information on current research in this area).

First prize, consisting of £750 and the Armourers and Brasiers Company medal, went to Jonathan Harris of the University of Bristol, representing the South West Region. His presentation, entitled 'Novel shaped fibres – improving the out of plane properties of continuous fibre reinforced plastics' was widely applauded by the judges and was particularly enjoyed by the audience. According to Harris the full benefits of continuous fibre reinforced plastics are not being realised. Their excellent in-plane properties are partnered by poor out-of-plane properties. He went on to describe a series of novel shaped fibres that will interlock, pack together, have a large surface area and have rotational symmetry, without adding extra processing steps. When asked later why he thought he had been chosen as the winner, he suggested that it was the fact that he had put across a materials engineering problem and a possible solution in an enjoyable way. 'I'll put the prize money towards a holiday,' he said.

The other contestants in the competition, Naeem Al-Jabari, Finlay Stewart, Elanor Merson, and Charlotte Foster all received

£100, as did the other entrants, in recognition of their selection as a regional finalist.

The other award presented was the 2003 Niobium Student Research Award. For more than 20 years Companhia Brasileira de Metalurgia e Mineracao and Niobium Products Co (NBC) have bestowed the Charles Hatchett Award to honour 'Excellence in Niobium'.

Through NBC's technical development programme many young researchers have investigated the use of niobium in specific application areas. However, as yet there has been no means to recognise this academic excellence. So, to show appreciation of their efforts and to highlight and promote research into niobium, NBC has established an award competition to reward a young researcher and their associated research institution.

The winner, receiving 1,500 euros, was Ms Daisy Bayot from the Université Catholique de Louvan, for her paper 'Novel water-soluble Nb(V) complexes to enhance the availability and uses of niobium in homogeneous and heterogeneous catalysts of oxidation reactions'.

Next year the Niobium Award Competition will be expanded to cover all European countries, former Commonwealth of Independent States and African and Middle Eastern countries to make the award a truly international event.



Ms Bayot receives her award from Klaus Hulka, Vice President of NBC.



Finalists and judges of the 2003 National Lecture Competition.