

MM 7: HV Greer

Time: Monday 14:00–14:30

Location: H16

Invited Talk

MM 7.1 Mon 14:00 H16

Metallic Glasses — •LINDSAY GREER — Dep. of Materials Science and Metallurgy, University of Cambridge, Pembroke Street, Cambridge CB2 3QZ, UK

Metallic glasses of many different compositions are now available in bulk (with minimum dimension of more than 1 cm). This has excited interest in these glasses as structural materials, and indeed they do show exceptionally high strength and capacity for elastic-energy storage. They suffer from very limited plasticity, and there has con-

sequently been much interest in the mechanisms of their plastic flow. This presentation deals first with why metallic glasses are attractive for a wide variety of structural and device applications, and then focuses on the emerging understanding of their plastic deformation. Under normal testing conditions, plastic deformation in these glasses is sharply localized into shear bands only 10 nm thick. The extreme conditions in these bands are a focus of current research. Already it is clear that there are very good correlations — much better than for crystalline metals — between elastic properties, plasticity and glass-forming ability.