Metallic Glasses

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Abstract

In this talk, we provide an introduction to metallic glasses, including recent developments on the range of structures and properties that can be achieved, and the growing possibilities for their applications. Even after more than 50 years of study, metallic glasses can be considered relative newcomers to the world of glasses, and they continue to provide surprises. There is current interest in the use of thermomechanical processing to extend the range of the glassy state, and metallic glasses are ideally suited for this [1]. In addition to the effects of plastic deformation, there are significant effects even well within the (nominally) elastic regime [2]. explore the remarkably wide range of energy that can be achieved in the metallic glassy state, from very high ('rejuvenated') to very low ('relaxed' and even 'ultrastable'). We also explore the extent to which directionality (anisotropy) can be induced in metallic glasses [3]. In each case, we examine the potential applications of the properties that can be induced in stable and unstable states [4].

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