

Abstract of Presentation

Presentation Title:

Nanostructured metallic materials – designing materials by visualization of atoms by 3D atom probe

Abstract :

A recent research trend in the development of high performance metallic materials is to refine the microstructural scale from the conventional micron order to the nanoscale dimension. When a crystal grain size becomes smaller than a few nanometers, where the dislocation activity is lost and the ferromagnetic exchange coupling becomes significant, various unique mechanical and magnetic properties appear. The characterization of such nanocrystalline materials that are produced by various processing routes can be performed most powerfully using the atom probe technique. In this talk, we will give an overview on the recent development of the 3D atom probe technique and our recent research effort on the development of nanostructured magnetic materials. Based on 3DAP analysis results, we optimize the nanostructures of soft and hard magnetic materials so that improved properties can be achieved.