

ATOM PROBE TOMOGRAPHY: A TOOL FOR 3-DIMENSIONAL CHARACTERIZATION OF MATERIALS

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The three-dimensional atomic-scale structure of materials can be analyzed by atom probe tomography. This technique measures the spatial coordinates and the elemental and isotopic identities of the atoms in a small volume of analysis that typically contain a few million atoms. The visualization and quantification of the resulting three-dimensional atomic distributions provide special computational challenges, which will be described. Atom probe tomography studies have provided unique insights into the early stages of phase transformations in a variety of technologically important materials.

Research at the Oak Ridge National Laboratory SHaRE Collaborative Research Center was sponsored by the Division of Materials Sciences and Engineering, U.S. Department of Energy, under contract DE-AC05-00OR22725 with UT-Battelle, LLC.