

Title: Effects of temperature on the short-range order of ternary metallic glass

Author: Xue Liang, Jiuhua Chen, Qiaoshi Zeng, Maria Teresa Mora

Center for Study of Matter at Extreme Conditions, Florida International University

Abstract

The present study reports how the temperatures effect the distribution of distances of $\text{Al}_{89}\text{Ce}_5\text{Ni}_6$ and Pd-Ni-P metallic glasses' pairs of particles. $\text{Al}_{89}\text{Ce}_5\text{Ni}_6$ and Pd-Ni-P metallic glasses samples were cooled at ten different temperatures and after each treatment, Synchrotron X-ray diffraction was conducted on the initial MGs sample and cooled samples at different temperatures. The total scattering measurements and data were accompanied and collected at National Synchrotron Light Source II, beamline 28-ID-2. These data provide short-range order information on the metallic glasses samples. The initial data were transferred to pair distribution function (PDF) data by using pdfgetx and the relationship between temperatures and short-range order was analyzed.