A combination of anomalous x-ray scattering and neutron diffraction for structural characterizations of $Zr_{45}Cu_{45}Ag_{10}$ metallic glass

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By adding Ag element, ZrCu amorphous metal can form bulk metallic glass with a diameter of some mm. To investigate the role of Ag atoms in ZrCu glass to improve the glass-forming ability, partial structures of $Zr_{45}Cu_{45}Ag_{10}$ bulk metallic glass were investigated using neutron diffraction at BL21/J-PARC (NOVA) and anomalous x-ray scattering close to the Zr, Cu, and Ag *K* edges at BM02/ESRF and BL13XU/SPring-8. According to the procedures described in Ref. [1], these experimental results were analyzed using reverse Monte Carlo (RMC) modeling. The results were compared with RMC results in a recent report by Kawamata et al. [2], where neutron diffraction data were not included in the analysis, as was examined for $Pd_{40}Ni_{40}P_{20}$ [1] and $Zr_{63}Ni_{25}Al_{12}$ [3] bulk metallic glasses.

References

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