Evaluation of the Structure of Amorphous Tungsten Oxide $W_{28}O_{72}$ by the Combination of Electron-, X-Ray- and Neutron-Diffraction (Three-Beam Experiment)

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From the combination of quantitative electron-diffraction data with X-ray- and neutron-diffraction data (so-called three-beam experiment) the partial structure factors and pair correlation functions of amorphous sputter deposited $W_{28}O_{72}$ were determined. On the basis of the experimental atomic distances and coordination numbers, and by comparison with crystalline WO_3, a structural model was developed, which consists of twisted WO_6 octahedra. Reverse Monte Carlo simulation in accordance with the experimental data was performed to verify the results.

Key words: Amorphous Tungsten Oxide; Diffraction; RMC Simulation.