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# HIGH TEMPERATURE SCANNING INDENTATION: LAST RESULTS ON AMORPHOUS SELENIUM

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## Abstract

The High-Temperature Scanning Indentation (HTSI) technique is a quasi-continuous measurement method renowned for its ability to monitor material properties and their variations across a wide temperature range. It has demonstrated the capability to detect critical phenomena such as static recovery, recrystallization, glass transition, and brittle-to-ductile transitions in various materials, including pure cold-rolled copper, aluminum, and thin-film metallic glasses. Over time, HTSI has proven to be a robust and effective tool for correlating measurable properties with the microstructural evolution of materials.

Amorphous selenium (a-Se), a member of the chalcogenide family, is mainly known for its interesting semiconducting and optoelectronic properties. One of its important characteristics is its temperature and humidity-dependent sensitivity.

In this conference, we present our latest findings using HTSI on amorphous selenium. The technique was employed to measure Young's modulus, hardness, and creep properties in situ during cyclic heat treatment. We will highlight how these properties evolve with temperature, showcasing the fundamental behaviors and transformations observed in the studied material.

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