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***In-situ* Synchrotron X-ray Studies of Creep Damage in CuZn-alloys.** A. Pyzalla^{1,2}, A. Isaac^{1,2}, B. Camin³, A. Kottar², H. Kaminski², T. Buslaps⁴, M. Di Michiel⁴, W. Reimers³, ¹TU Wien, Karlsplatz 13-308, A-1040 Wien, Austria, ²Max-Planck-Inst. for Iron Research, Max-Planck-Str.1, 40237 Düsseldorf, Germany, ³TU Berlin, Ernst-Reuter-Platz 1, D-10587 Berlin, Germany, ⁴European Synchrotron Radiation Facility, ESRF, BP220, Grenoble, France.

The combination of tomography and diffraction experiments gives the unique opportunity to follow the development in the microstructure of materials and the subsequent changes in their texture and/or internal stress state due to external loading.

Combined tomography and diffraction carried out continuously *in-situ* and during only one experiment significantly increases the understanding of microstructure changes during creep, where it is important to characterise the dynamics in the early stages of the process. We performed combined diffraction/ tomography experiments, which aimed at determining *in-situ* the creep damage evolution and its correlation to texture development of CuZn-alloys.

The results of the experiments reveal the development of creep voids and damage in CuZn-alloys with increasing creep time. The experiments also show an influence of loading conditions (temperature, stress) on the void size and void growth mechanisms. We attempt to link creep damage, microstructure and microstrain development during the creep process.