PAUL SCHERRER INSTITUT

PSI facilities newsletter

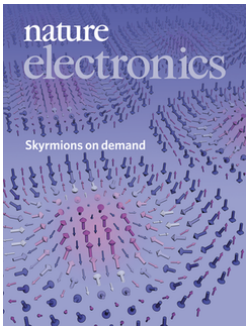
https://www.psi.ch/science/facility-newsletter

32nd Rhine-Knee Regiomeeting in Emmetten (CH)

Since it was first established in 1987, the annual Regio-Meeting has been instrumental in facilitating interactions in the structural biology community in southwestern Germany, the eastern region of France and an expanding area of Switzerland. It is set as an informal event to foster young scientists to discuss their research results in an international context and with representatives from industry. The 2018 edition will take place in the heart of Switzerland in Emmetten from September 26 to 28, 2018. The regiomeeting is sponsored by well-known companies (http://regiomeeting.eu/meeting-2018/sponsors) and by the Horizon2020 project CALIPSOplus (http://www.calipsoplus.eu/).

Registration and abstract submission deadline: September 7, 2018
http://regiomeeting.eu/meeting-2018

SLS - Creation and deletion of isolated magnetic skyrmions via electrical currents

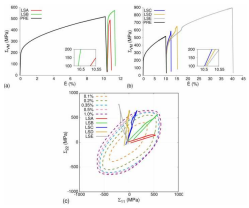


S. Woo et al., Nat. Electr. 1, 288 (2018), DOI: 10.1038/s41928-018-0070-8

In the quest for higher density information storage, some scientists have turned their attention to magnetic Skyrmions—stable nanometer-size swirls of spin. Initially restricted to liquid Helium temperatures, high applied magnetic fields, and to single-crystalline materials, magnetic Skyrmions are now routinely studied in various magnetic multilayer superlattices at room temperature and low applied magnetic fields. Researchers can generate and eliminate Skyrmions en-masse through the application of magnetic fields. However, the applicability of magnetic Skyrmions in future memory devices relies on the addressing and manipulation of single magnetic whirls.

Read more: https://www.psi.ch/science/psd-highlights

Mechanical response of stainless steel subjected to biaxial load path changes: cruciform experiments and multi-scale modeling



M. V. Upadhyay et al., International Journal of Plasticity, 2018,
DOI: 10.1016/j.ijplas.2018.05.003

In this work, we have enhanced our originally proposed experiment-modeling synergy in Upadhyay et al. Acta Mat. 2016, to capture the stress evolution in the complex cruciform geometry during arbitrary multi-axial load path changes. We perform cruciform simulations using the implementation of the visco-plastic self-consistent (VPSC) model as a user material (UMAT) into the ABAQUS finite element (FE) solver. We also use the Elasto-viscoplastic fast Fourier transform (EVP-FFT) approach to compute yield surfaces. This experiment-modeling synergy is exploited to understand the mechanical response (including the elastic response, Bauschinger effect and hardening) of 316L stainless steel following biaxial load path changes.

Read more: https://www.psi.ch/pem/mechanical-response-of-stainless-steel-subjected-to-biaxial-load-path-changes