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Title: Some properties of radiation induced defects and their effect to mechanical response of irradiated metals.

Name: Osetskiy, Yury

Affiliation: ORNL

Defects created in primary damage under irradiation evolve into specific microstructure that dramatically change properties of irradiated metals. Primary damage formation and properties of radiation induced defects were described in the previous lectures. These defects are obstacles for dislocation motion and therefore affect mechanical properties of irradiated metals directly. In this presentation the effect of radiation defects to dislocation motion and, therefore, plasticity mechanisms will be considered at atomic scale. Basic models for dislocation motion and interaction with radiation defects will be described and examples of interactions will be demonstrated. Attention will be paid to both strengthening effects and microstructure change during deformation. Impact of atomic scale mechanisms to the overall plasticity of irradiated metals and links with upper continuum level modeling will be discussed.