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Title: The influence of interface sink strength on the reduction of radiation-induced defect concentrations and fluxes in materials with large interface area per unit volume

Name: Demkowicz, Michael

Affiliation: MIT

We use a reaction-diffusion model to demonstrate that buried interfaces in polycrystalline composites simultaneously reduce both the concentrations and fluxes of radiation-induced defects. The steady-state radiation-induced defect concentrations, however, are highly sensitive to interface sink strength, ?. Materials containing a large volume fraction of interfaces may therefore be resistant to multiple forms of radiation-induced degradation, such as swelling and hardening as well as embrittlement by solute segregation, provided that the interfaces have suitable ? values.
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