Center for Thermal Energy Transport under Irradiation (TETI)

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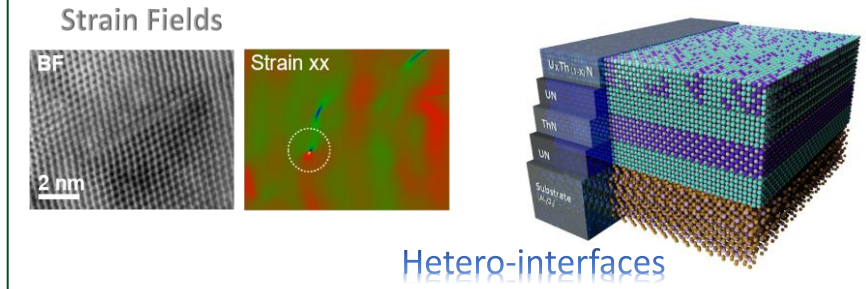
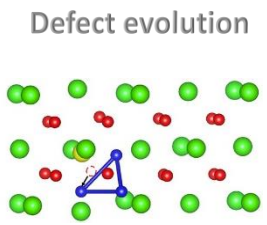
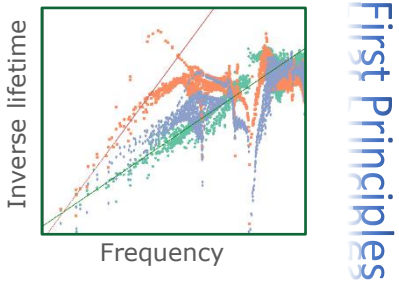
MISSION: To accurately predict, from first principles, thermal energy transport in actinide materials in extreme environments.

http://teti.inl.gov





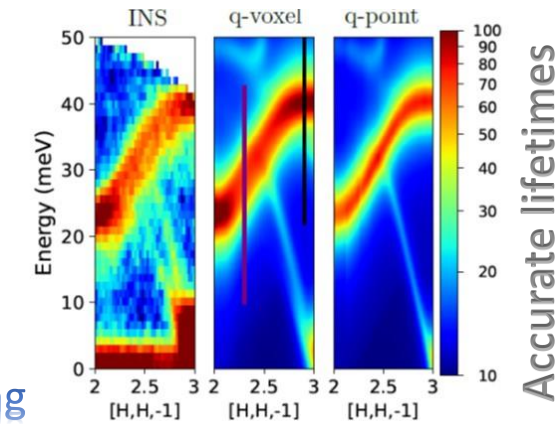


Electron correlation

Temperature extremes

Electron-phonon coupling

$$\kappa_{\alpha\beta} = \frac{1}{Vk_BT^2}\int_0^\infty \langle J^\alpha(0)J^\beta(t)\rangle dt$$



RESEARCH PLAN

Thermal energy transport in nuclear fuel is directly related to fuel performance, safety margins, and fuel longevity. The aim of TETI is to develop a first principles understanding of electron and phonon transport in advanced nuclear fuels that will provide the necessary tools to enhance thermal transport by tailoring defects and microstructure.

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