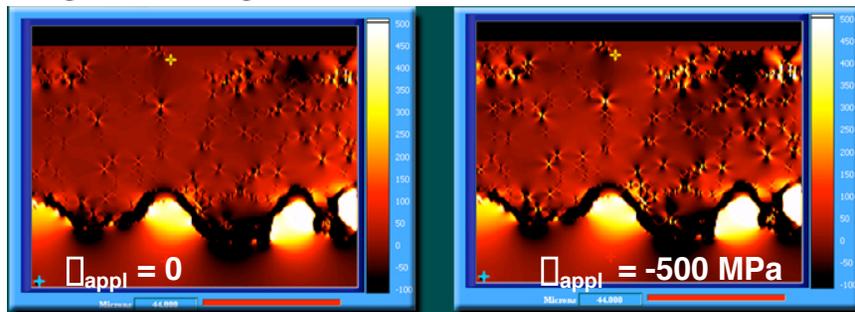


μ -FEA Uses Real Micro- & Macro-Structure to Predict Response to External Environments and to Tailor Materials for Improved Performance

Employs ANSYS as FEA solver thus can analyze:

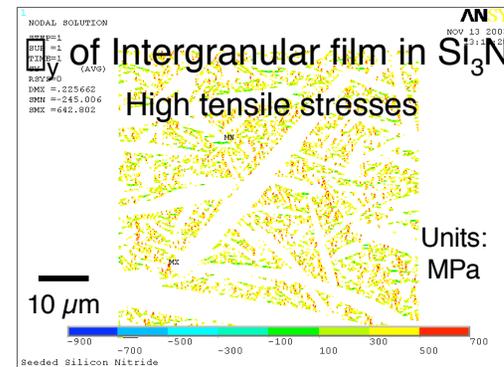
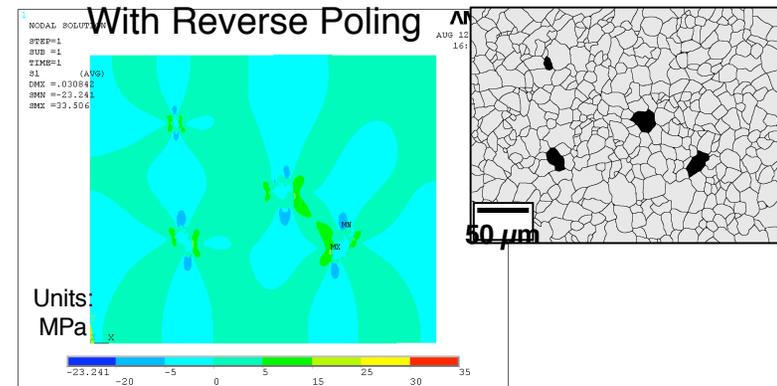
- linear and non-linear properties
- steady-state and transients (e.g., thermal shock, creep)
- piezoelectric effects
- effects of phase changes & swelling
- probabilistic behavior
- element birth & death (e.g., microcracking)

TBC Residual Stresses due to thermal gradients, growth of TGO, service stresses.



EBC: tailor Si_3N_4 surface composition to minimize tensile stresses in EBC system.

Pores Cause Stress Risers That Cycle



Predicting stresses within microstructure