



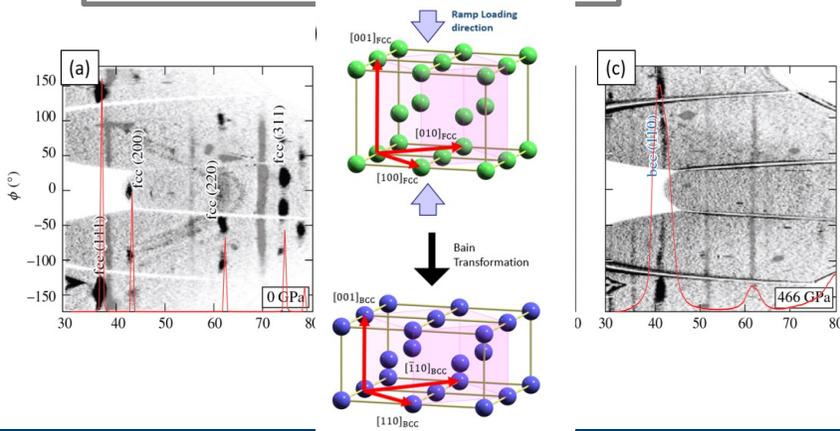
# Multiscale modeling and simulations of nanoscale materials

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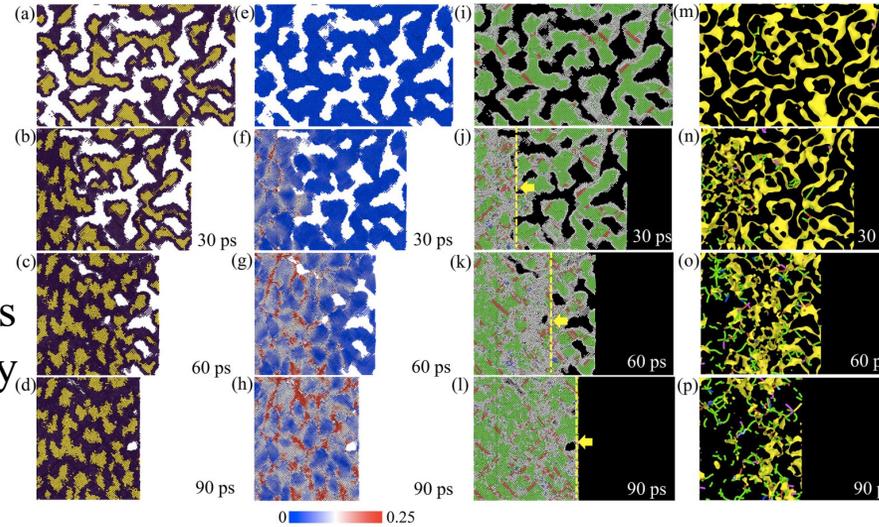
Broad research interests:

- Deformation under extreme conditions
- Surface and interface mediated mechanics
- Synthetic materials characterization (Xray diffraction, Raman spectra, IR spectra)
- Machine learning in materials science
- Phase transformation at high pressure

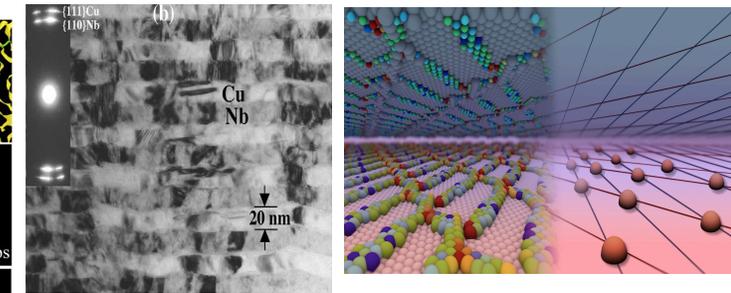
## Synthetic X-ray diffraction



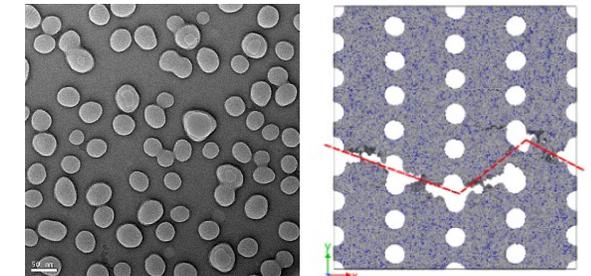
## Shock loading



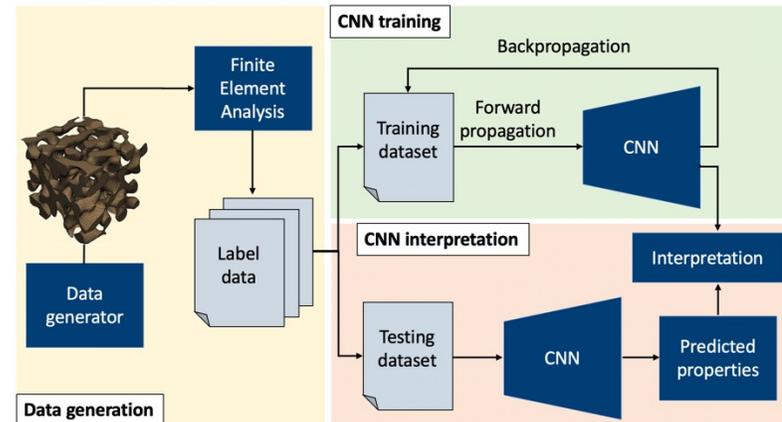
## Interface structure in composites



## Fracture in 2D SiN membranes



## Mining structure-property relationships



## Failure in 3D Nanoporous Metals

