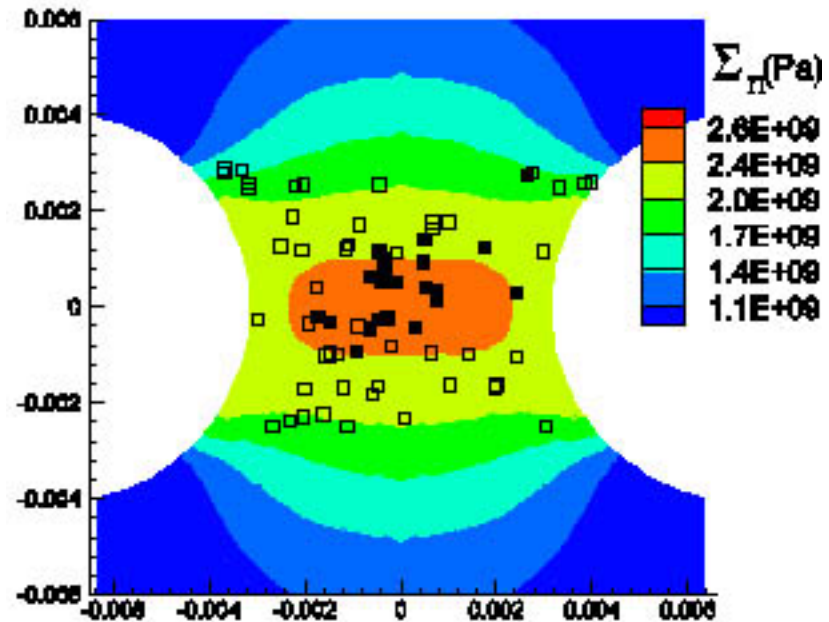
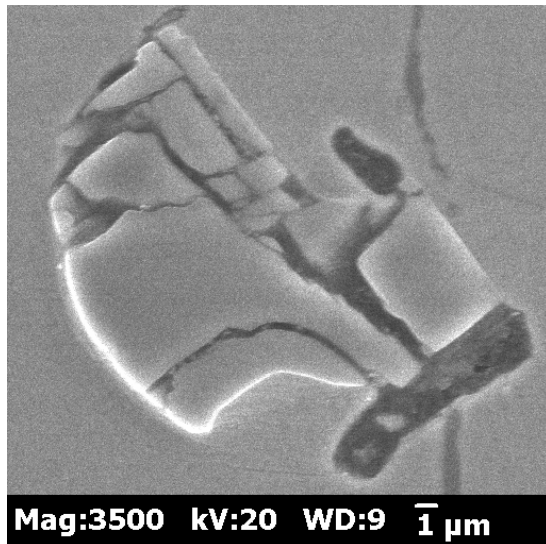


Ductile Fracture in Steel

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- Ductile fracture in Ti-modified 4330 steel is nucleated by cracking of TiN inclusions as shown in figure above on left.
- Detailed microscopy that determined the size and location of cracked inclusions.
- Map on right shows location of cracked (solid squares) and un-cracked (open squares) inclusions. Cracked inclusions lie in area near notch where stress was above 2.4 GPa. Results from samples with different notch radii confirmed that nucleation could be modeled by considering both the effective stress and hydrostatic tension.