

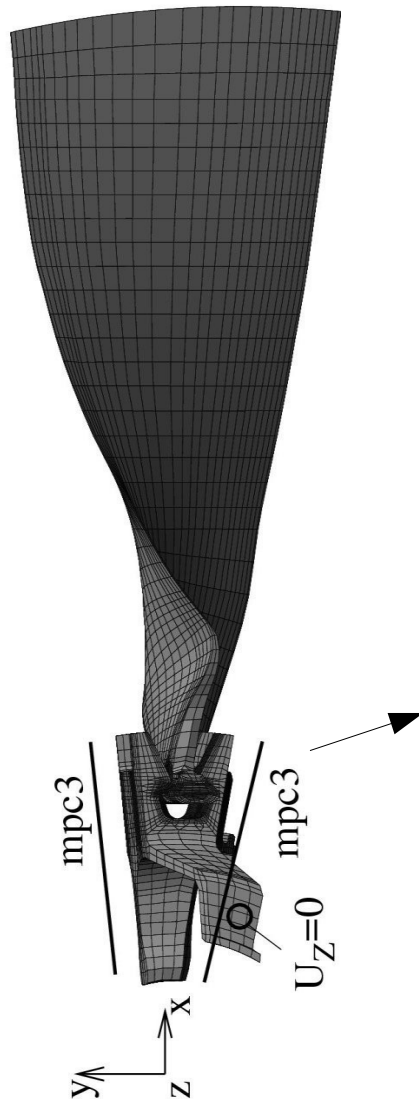
# Fatigue prediction



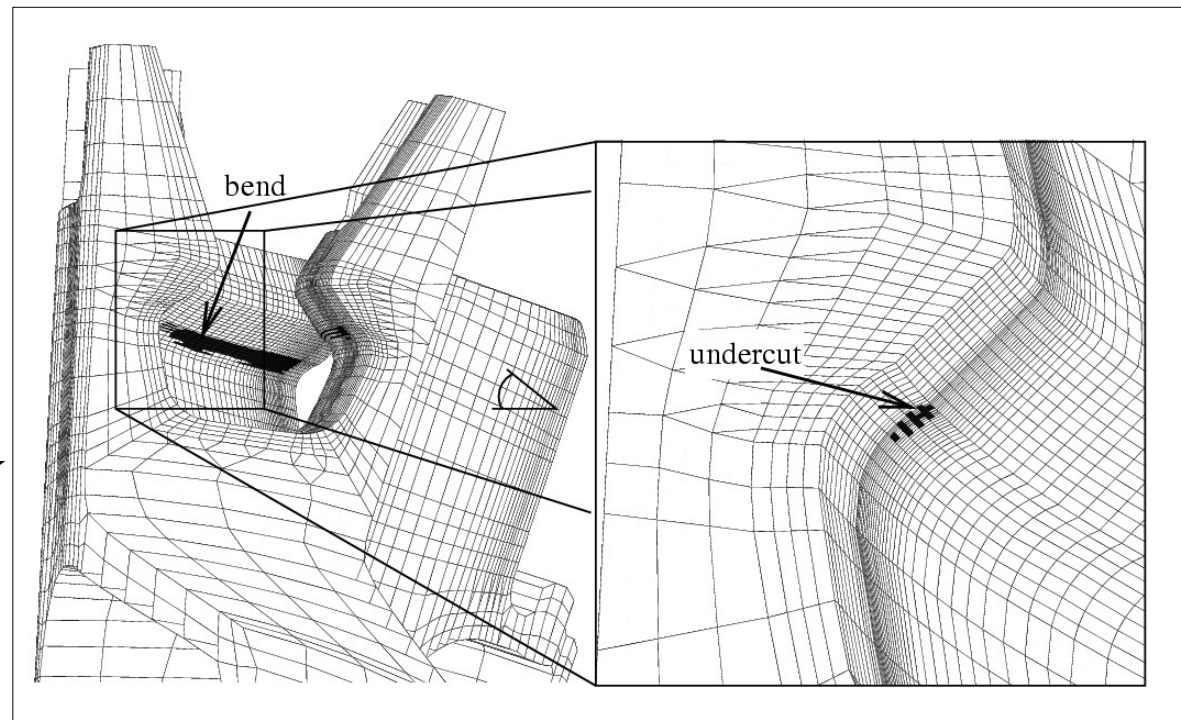
## Fatigue models available in Zebulon

- High cycle fatigue (HCF) Criteria: Sines, Crossland, DangVan
- Multi-dimensional strain based fatigue life (Cofin-Manson)
- Multi-dimensional stress based fatigue life (ONERA-Model)
- Stress-strain based fatigue life (Smith-Watson-Topper)
- Crack initiation taking oxidation into account
- Creep-fatigue interaction
- Rainflow 3D

## Example – Dang Van high cycle fatigue criterion



- Aeroengine fan
- Cyclically loaded blade–disc fixing
- Titanium alloy Ti6Al4V



Black regions designate locations, where HCF is predicted