UNSW SYDNEY | Australia's Global University

School of Mechanical and Manufacturing Engineering
& School of Materials Science

Processing & Structure Correlation

EXPERTISE

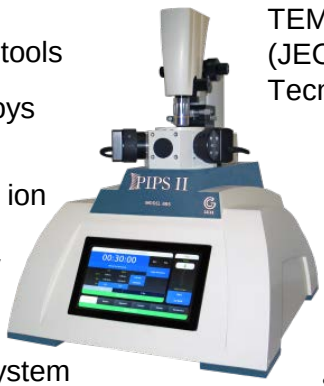
Characterization & modelling:

- Thermo-kinetic modelling of advanced steels
- Microscopic characterization of structure and grain boundary character (FIB/TEM/TKD/APM)
- Thermomechanical processing of advanced steels, Ni-based superalloys, refractory metals
- Calculation and characterization of the formation of precipitates
- Correlation between processing, structure and properties combined with simultaneous modelling of deformation processes

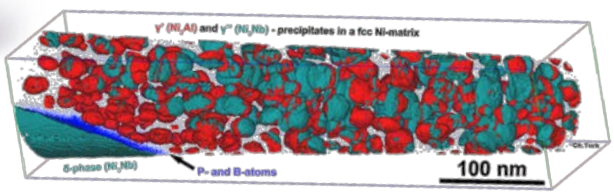
Equipment

- Various SEM & FIB microscopy tools to analyse and characterize the microstructure of metals and alloys (Zeiss, FEI, Hitachi, JEOL)

- Precision ion polishing capability using the Gatan PIPS II system

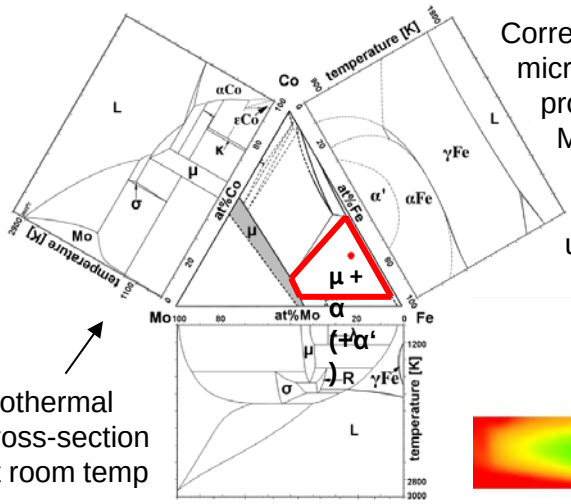


- High-resolution TEM capabilities (JEOL, Philips, Tecnai)



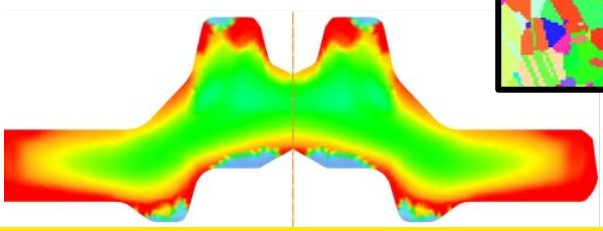
- Advanced composition analysis of grain chemistry, grain boundary impurities & precipitates using atom-probe microscopy

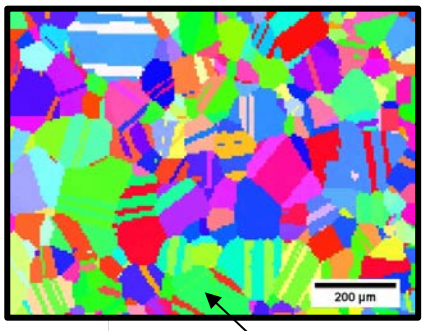
Phase calculations using thermo-kinetic modelling & simulations of deformation processes



Isothermal cross-section at room temp

Correlation of processing, thermal treatment and microstructure via simulations of processing during forming & Microstructure characterization after heat treatment (annealing / recrystall.) using EBSD.





EBSD map of Ni-based alloy

新南威尔士大学火炬创新园区
Torch Innovation Precinct at UNSW

More Information contact: Professor Jay Kruzic (j.kruzic@unsw.edu.au)