

**Linking Processing, Microstructure and Property Modeling**  
**Breitnau/Freiburg May 2<sup>nd</sup>-5<sup>th</sup>, 2004**

**Sunday, 2<sup>nd</sup> May:**

19.30

Dinner followed by social on the patio

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**Monday, 3<sup>rd</sup> May:**

08.45-09.00

Workshop introduction

**Session 1. Characterization for Modeling** (Chair: Hamish Fraser)

09.00-09.35

*Reiner Kirchheim*: Modelling segregation at grain boundaries, precipitation and grain growth

09.35-10.10

*Mike Uchic*: Development of novel microstructure and property characterization methods which utilize the Dual Beam FIB-SEM

10.10-10.30

Discussion session

10.30-11.00

Break

11.00-11.35

*Colin Humphreys*: Advanced Electron Microscopy for Revealing Micro- and Nanostructures

11.35-12.10

*Hamish Fraser*: Novel characterization: 3-D microstructures, combinatorial approaches and direct observations of GNDs and SSDs associated with strain gradient plasticity

12.10-12.30

Discussion session

12.30-14.00

Lunch

**Session 2. Property Prediction** (Chair: Tresa Pollock)

14.00-14.35

*Harry Bhadeshia*: Transformation Plasticity and Mixed Microstructures in Steel

14.35-15.10

*Dierk Raabe*: How much microstructure is required in process models?

15.10-15.30

Discussion session

15.30-16.00

Break

16.00-16.35

*Malcolm Mclean*: Microstructure Explicit Modelling and Characterisation of Solidification and Creep in Superalloys

16.35-17.10

*Tresa Pollock*: Nickel-base Superalloys: Property Modeling and Rapid Characterization

17.10-17.30

Discussion session

**Tuesday 4<sup>th</sup> May:**

**Session 3. Process Modeling** (Chair: Malcolm Mclean)

09.00-09.35

*Alain Jacot*: A 2-dimensional Model Coupled to a Thermodynamic Database for the Prediction of Solidification Microstructures in Multi-Component Aluminum Alloys

09.35-10.10

*Jeff Brooks*: Materials modelling for component life prediction

10.10-10.30

Discussion session

10.30-11.00

Break

11.00-11.35

*Sammy Tin*: Integrated Modeling for the Manufacture of Aeroengine Discs: Predicting the evolution of microstructure during processing.

11.35-12.10

*John Humphreys*: Deformation microstructures in aluminium and their influence on recrystallization

12.10-12.30

Discussion session

12.30-14.00

Lunch

**Session 4. Dislocation Modeling** (Chair: Dennis Dimiduk)

*13.30-14.05*

*Benoit Devincere*: Strain hardening and dislocation patterning studied by DD simulations

*14.05-14.40*

*Richard LeSar*: Mesoscale Modeling of Dislocation Energetics and Dynamics

*14.40-15.00*

Discussion session

*15.00-15.30*

Break

*15.30-16.05*

*Daniel Weygand*: Discrete Dislocation Modelling in Three Dimensions: on the Stability of Locks and towards Reverse Loading

*16.05-16.40*

*Dennis Dimiduk*: Early-Stage Plasticity at the Micron Scale

*16.40-17.15*

Holger Brehm: Dislocation density based material model

*17.15-17.35*

Discussion session

**Wednesday 5<sup>th</sup> May:**

**Session 5. Phase Field and FEM Modeling** (Chair: Peter Gumbsch)

*09.00-09.35*

*Yunzhi Wang*: Simulating Microstructure Evolution Using the Phase Field Modeling

*09.35-10.10*

*Paul Van Houtte*: Anisotropic modelling of the plastic deformation of polycrystalline materials at macroscopic and mesoscopic level: role of crystallographic and morphological texture.

*10.10-10.30*

Discussion session

*10.30-11.00*

Break

*11.00-11.35*

*Samuel Forest*: Continuum modelling of single and polycrystal plasticity in engineering alloys: representative volume elements, strain heterogeneities and damage initiation

*11.35-12.10*

*Yunzhi Wang*: Simulation of dislocation behavior using phase field modeling

*12.10-12.30*

Discussion session

*12.30-14.00*

Lunch