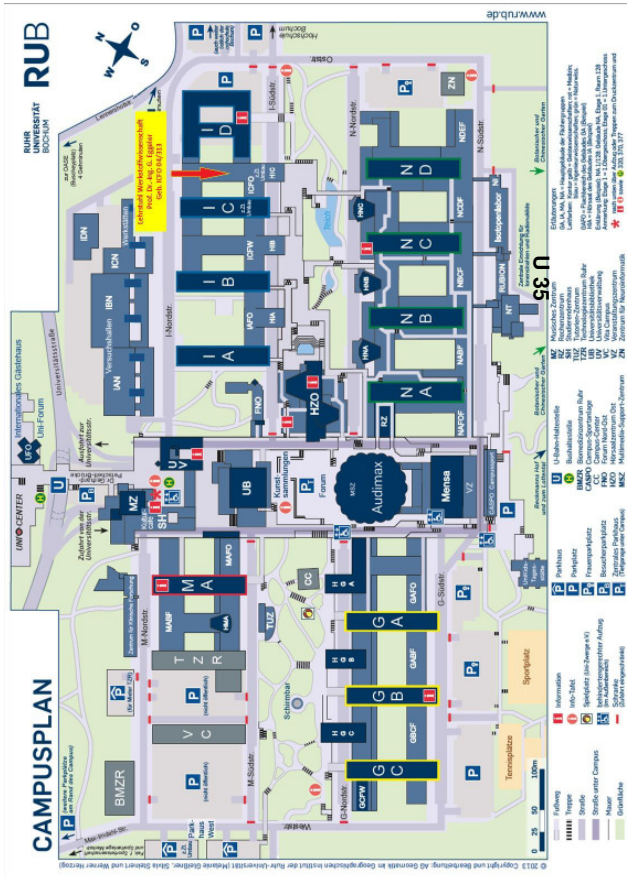
Organized by the Collaborative Research Centre SFB/TR 103 (From Atoms to Turbine Blades – A Scientific Basis for a New Generation of Single Crystal Super Alloys), funded by the German Research Association (DFG)

SFB/Transregio 103
SUPERALLOY SINGLE CRYSTALS

DFG Deutsche Forschungsgemeinschaft

RUB

LWW Lehrstuhl Werkstoffwissenschaft
materials science and engineering



Location:

Ruhr-Universität Bochum, Universitätsstr. 150, 44801 Bochum, Seminar room ICFO 03/216

Organization:
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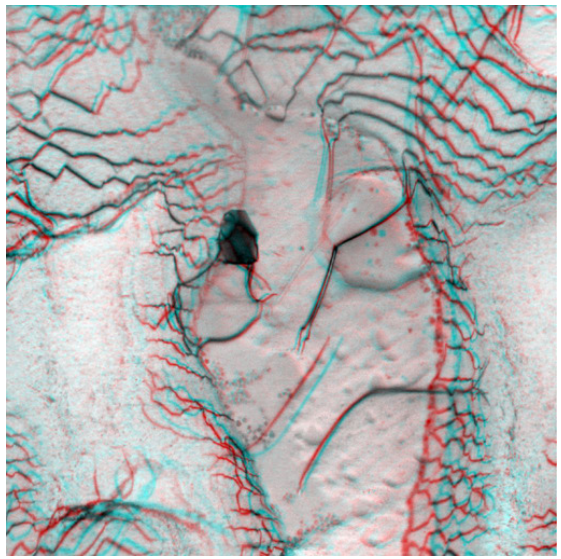
Symposium

Recent progress in transmission electron microscopy and atom probe analysis of advanced high temperature materials



6th/7th March, 2014

Institut für Werkstoffe

Ruhr-Universität Bochum

SYMPOSIUM / OBJECTIVES:

On Thursday/Friday March 6th/7th 2014, the collaborative research centre SFB/TR 103 will organize a one day symposium for researchers who use transmission electron microscopy and atom probe analysis for the characterization of microstructures in high temperature materials. While different material classes will be addressed, special emphasis will be placed on single and poly crystalline Ni- and Co-based super alloys with γ/γ'-microstructures. Elementary processes which govern high temperature plasticity and the evolution of microstructures under creep conditions will receive special attention.

PROGRAMME:

Thursday, March 6th: Get together.

19.00–21.00 Café Zentral, Downtown Bochum, Luisenstr. 15. Begin: 7 pm.

Friday, March 7th: Location: ICFO 03 / 216.

8.30–9.00 Registration and Coffee

9.00–9.30 M. Mills, The Ohio State University, Columbus, USA: Using and interpreting advanced STEM-based methods for structural and chemical analysis of superalloys

Friday, March 7th: Location: ICFO 03 / 216.

9.30–10.00 J. Müller, F. Niekiel, E. Spiecker, FAU, Erlangen: Simultaneous strain and chemical mapping of gamma-gamma' microstructures by combined CBED-EDX analysis in scanning transmission electron microscopy

10.00–10.30 L. Agudo Jácome, BAM, Berlin: Diffraction contrast in scanning transmission electron microscopy as a powerful tool for quantitative dislocation analysis

10.30–11.00 Coffee Break

11.00–11.30 A. Dlouhy, Institute of Physics of Materials, Brno, CZ: Calculation of resolved shear stresses and line energies to gain insight into dislocation processes in super alloy single crystals

11.30–12.00 I. Povstugar, MPIE, Düsseldorf: A 3D atom probe investigation on the effect of cooling rate after creep testing on the microstructure of superalloys

12.00–12.30 A. Kostka, MPIE, Düsseldorf: On the evolution of TCP chemistry and crystallography during creep of single crystal Ni-base super alloys

Friday, March 7th: Location: ICFO 03 / 216.

12.30–13.00 Lunch

13.00–13.30 A. Parsa, RUB, Bochum: On the interaction between dislocation plasticity and rafting in γ/γ'-microstructures of Ni-base single crystal super alloys

13.30–14.00 M. Terock, University of Bayreuth: Ni-Zr-Y with addition of Pt – a TEM characterization of an in-situ produced catalyst

14.00–14.30 Y. M. Eggeler, J. Müller, E. Spiecker, FAU, Erlangen: Assessing phase stability and lattice misfit in Co-base superalloys at elevated temperatures by in situ TEM heating experiments

14.30–15.00 Coffee Break

15.00–15.30 M. Isik, MPIE, Düsseldorf: Nucleation and growth of Mo-rich Laves phase particles during creep of a 12% Cr tempered martensitic steel

15.30-16.00 C. Somsen, RUB, Bochum: In-situ thermal and mechanical TEM experiments on NiTi shape memory alloys

16.00-16.30 R. Rynko, RUB, Bochum: TEM investigations of a TiTa high temperature shape memory alloy

16.30 Coffee, End of Symposium