



## Tentative program (status June 10<sup>th</sup> 2009)

### Welcome and Workshop Opening

Monday 31.08. 9:00-9:10h

I. Steinbach, G.J. Schmitz

### Session I

#### Solidification

Monday 31.08.2009 09:10-11:00h

Chair: Robert Spatschek, Ruhr University Bochum

Time	Authors	Title
09:10	<u>Karma, A.</u>	Phase-Field Modeling Polycrystalline Solidification with Defects
09:40	Yamaguchi, M., <u>Beckermann, C.</u>	Phase-field simulation of solidification with deformation
10:00	<u>Carré, A.</u> , Apel, M., Böttger, B.	Modeling the solidification of an A356 aluminium alloy extended by an approximation for large volume changes and pore formation
10:20	<u>Eiken, J.</u>	Phase-field simulations of microstructure formation in technical magnesium alloys
10:40	<u>Zhang, L.</u> , Du, Y., Kong, Y.	Phase field simulation of polycrystalline solidification in Al-Ni alloys using thermodynamic and atomic mobility databases

### Coffee Break

Monday 31.08.2009 11:00-11:30h



## Session II

### Miscellaneous

Monday 31.08.2009

11:30-13:10h

Chair: Britta Nestler, University Karlsruhe

Time	Authors	Title
11:30	<u>Plapp, M.</u> , Hervé, H., Jesper, M., Nguyen, T.-H.	Phase-field models with nematic order parameters
11:50	<u>Pusztai, T.</u> , Környei L., Gránásy L.	Particle-front interaction and particle pushing studied by phase-field theory
12:10	<u>Warren, J. A.</u>	Phase-field modeling of wetting, spreading and nucleation
12:30	<u>Dreyer, W.</u> , Gohlke, C.	On a paradox within the phase field modeling of storage systems and its resolution
12:50	<u>Amberg, G.</u> , Agren, J., Grönhagen, K., Villanueva, W.	Multicomponent and multiphase simulation of sintering

## Lunch Break

Monday 31.08.2009

13:10-14:00h



## Session III

### Strong non equilibrium

Monday 31.08.2009 14:10-15:30h

Chair: Christoph Beckermann, University of Iowa

Time	Authors	Title
14:10	Hadi, I., Jabbaueh, M.A., <u>Assadi, H.</u>	Combined deterministic-probabilistic modelling of microstructure evolution in thermal processes
14:30	Abramova, E., Danilov, D.A., <u>Galenko, P.K.</u> , Lebedev, V.G.	Phase-field modeling of rapid solidification: solute trapping and diffusionless crystal growth
14:50	<u>Niknafs, S.</u> , Phelan, D., Dippenaar, R.	Phase-field modelling of high rate of change microstructure

## Coffee Break

Monday 31.08.2009 15:10-15:40h



## Session IV

### Basic

Monday 31.08.2009 15:40-17:20h

Chair: Mathis Plapp, Ecole Polytechnique

Time	Authors	Title
15:40	<u>Boussinot, G.</u> , Brener, E.A., Temkin, D.	Phase-field simulations in peritectic systems
16:00	<u>Kassner, K.</u> , Gugenberger, C., Spatschek, R.	Phase-field modelling of surface diffusion
16:20	<u>Kim, S.G.</u> , Kim, W.T., Lee, J.K.	Diffusional growth along grain boundary
16:40	<u>Stiemer, M.</u> , Große-Wöhrmann, A., Gladkov, S., Svendsen, B.	Efficient and reliable finite element technique for phase field models
17:00	<u>Pons, A.</u> , Karma, A.	Phase field study of three dimensional brittle fracture

## Poster Session Opening

(Posters will be displayed from  
Monday 18:00h through Wednesday 13:00h, see Session XII)

**Session Opening Monday 31.08.2009 18:00h**



## Session V

### Defect Structures/ Functional Materials

Tuesday 01.09.2009 09:10-11:00h

Chair: Long Qin Chen

Time	Authors	Title
09:10	<u>Wang, Y.</u>	Phase-field Modeling of Defects and Deformation
09:40	<u>Hu, S.</u> , Henager, C., Gao, F., Devanathan, R.	Phase-field modeling of microstructure and property evolution in radiated materials
10:00	<u>Ode, M.</u> , Abe, T., Murakami, H., Onodera, H.	Prediction of reaction diffusion phenomena between Ir-coating and Ni-Al alloy substrate using a phase-field model
10:20	<u>Quek, S.S.</u> , Ahluwalia, R., Srolovitz, D.J.	Solving the phase field dislocation dynamics model in real space to study size effects on strength of materials
10:40	<u>Hervé, H.</u>	Phase field study of the branching instability

## Coffee Break

Tuesday 01.09.2009 11:00-11:30h



## Session VI

### Phase-Field-Crystal

Tuesday 01.09.2009 11:30-12:50h

Chair: Jim Warren, NIST

Time	Authors	Title
11:30	<u>Elder, K.</u> , Provatas, N., Huang, Z-F, Hoyt, J.J.	Phase field crystal modeling of binary alloys
11:50	<u>Granasy, L.</u> , György, T.	Morphology evolution and solidification kinetics in 2D and 3D: A phase field crystal study
12:10	<u>Hirouchi, T.</u> , Takaki, T., Shibutani, Y., Tomita Y.	Effects of temperature and grain size on phase field crystal deformation simulation
12:30	<u>Voigt A.</u>	Crystallography on curved surfaces - a phase-field approach

## Lunch Break

Tuesday 01.09.2009 12:50-14:00h



## Session VII

### Plastic Transformations

Tuesday 01.09.2009 14:00-15:40h

Chair: Won Tae Kim

Time	Authors	Title
14:00	<u>Ahluwalia, R.</u> , Song, J., Bouville, M.	Size effects in solid-solid phase transformation with elastic interactions: insights from phase field modelling
14:20	<u>Ebrahimi, Z.</u> , Rezende, J.L.L., Kundin, J.	Phase-field modeling of elastic effects in eutectic growth with misfit stresses
14:40	<u>Fleck, M.</u> , Hüter, C., Pilipenko, D., Spatschek, R., Brener, E. A.	Pattern formation during diffusion limited transformations in solids
15:00	<u>Nestler, B.</u> Aksi, A., Selzer, M., Jainta, M., Wendler, F.	Microstructure simulations of porous media, of cell motion in flow fields and the interaction with structured surfaces
15:20	<u>Yamanaka, A.</u> , Takaki, T., Tomita, Y.	Crystal plasticity phase-field simulation of microstructure evolution with elastoplastic deformation

## Coffee Break

Tuesday 01.09.2009 15:40-16:00h



## Session VIII

### Functional Materials

Tuesday 01.09.2009 16:00-17:20h

Chair: Laszlo Granaszy, Brunel University (to be confirmed)

Time	Authors	Title
16:00	<u>Chen, L.-Q.</u> ,	Predicting domain structures and properties of ferroelectric thin films using the mesoscale phase-field approach
16:20	<u>Kaushik, D.</u> , Kaushik, B.	A Boundary Element Method Coupled to phase field to compute ferroelectric domains in complex geometries
16:40	<u>Ng, N.</u> , Ahluwalia, R., Srolovitz, D. J.	Effects of electrical boundary conditions on nucleation mechanics in ferroelectric thin films
17:00	<u>Wang, J.</u> , Kamlah, M.	Phase field modeling of ferroelectric nanodots and nanotubes

### Guided Abbey Tour

Tuesday 01.09.2009 18:00-18:30h

### Symposium Dinner

Tuesday 01.09.2009 19:30





## Session IX

### Steel Applications

Wednesday 02.09.2009 09:20-11:00h

Chair: Machiko Ode

Time	Authors	Title
09:20	<u>Azizi-Alizamini, H.</u> , Militzer, M., Poole, W.J.	Phase field modeling of austenite formation from different ferrite-carbide aggregates
09:40	<u>Grönhagen, K.</u> , Ågren, J.	Simulation of spinodal decomposition; A combined "phase-field" and CALPHAD approach
10:00	Kim, S.G, <u>Kim, W. T.</u> , Cha, P.-R., Lee, J.K.	Phase field modeling of phase transformation in steel
10:20	<u>Nakajima, K.</u> , Toji, Y., Okuda, K., Yamashita, T., Tanaka, Y.	Phase field simulation on microstructure formation of the steel
10:40	<u>Mukherjee, K.</u> , Prah, U., Bleck, W.	Microstructural Evolution During Welding of Dual Phase Steels

### Coffee Break

Wednesday 02.09.2009 11:00-11:30h



## Session X

### Superalloys

Wednesday 02.09.2009 11:30-12:50h

Chair: Wolfgang Dreyer

Time	Authors	Title
11:30	<u>Kitashima, T.</u> , Harada, H.	Phase-field study of $\gamma$ precipitation in multicomponent Ni-base superalloys
11:50	<u>Koyama, T.</u>	Phase-field simulation of $\gamma(A1)+\gamma(L1_2)+\gamma'(D0_{22})$ three phases microstructure formation in Ni base superalloys
12:10	<u>Vorontsov, V.</u> , Voskoboinikov, R.E., Rae, C.M.F.	Stacking fault shear in Ni-Base Superalloys
12:30	<u>Warnken, N.</u> , Reed, R. C.	Application of the phase-field method to simulation in superalloy processing

## Lunch Break

Wednesday 02.09.2009 12:50-14:00h



## Session XI

### Grain Growth

Wednesday 02.09.2009 14:00-15:20h

Chair: Ken Elder

Time	Authors	Titel
14:00	<u>Li, J.</u> , Wang, J., Yang, G.	Phase field simulation of grain growth with grain boundary
14:20	<u>Schaffnit, P.</u> , Stallybrass, C., Konrad, J., Meuser, H., Grimpe, F.	Dual-scale phase-field simulation of grain growth upon reheating of a microalloyed line pipe steel
14:40	<u>Takaki, T.</u>	Multi-Scale simulations during dynamic recrystallization using multi-phase-field method
15:00	<u>Vanherpe, L.</u> , <u>Moelans, N.</u> , <u>Blanpain, B.</u> , <u>Vandewalle, S.</u>	The effect of ellipsoid second-phase particles on grain growth studied by three-dimensional phase field simulations

### AWARD Ceremony

Best Poster Award donated by ICAMS Ruhr-University Bochum  
Best Student Paper Award donated by PennState University  
MICRESS Award for Best Engineering Application

### Closing Ceremony

Wednesday 02.09.2009 15:30-16:00h



## Session XII

### Poster Session

open from Monday 6 p.m. through Wednesday. 1 p.m.

Chair: Ingo Steinbach

Poster #	Authors	Titel
1	Dreyer, W., <u>Guhlke, C.</u>	The coupling of diffusion and mechanics in phase field models in the context of hydrogen storage and lithium-ion batteries
2	<u>Aksi, A.</u> , Nestler, N., Selzer, M., Jainta, M.	Computational Study of heat transport in microstructures using a coupled Phase-Field and Lattice Boltzmann Model
3	<u>Apel, M.</u> , Böttger, B.	Phase-field simulation of microstructure formation in the weld pool and the heat affected zone during welding of steel
4	Cihak, U.	Application of the phase-field method to the austenite-ferrite transformation of a commercial steel grade
5	<u>Heulens, J.</u> , Moelans, N., Verhaeghe, F., Blanpain, B., Wollants, P.	Isothermal multiphase field model for slag solidification
6	<u>Kong, Y.</u> , Liu, S., Du, Y., Zhang, L.	Effect of third element on microstructural evolution of eutectic solidification of Al-Si alloys
7	<u>Miller, W.</u> , Cantù, G., Rasin, I.	Phase field simulations of the evolution of large cellular and grain structures during solidification of semiconductors
8	<u>Selzer, M.</u> , Jainta, M., Reichardt, M., Nestler, B.	Large grain systems based on experimental EBSD-data and influence of elastic forces
9	<u>Shahandeh, S.</u> , Militzer, M.	Modelling of grain boundary-particle interaction using multi phase field formulation
10	Toth, G., <u>Gránásy, L.</u>	Ginzburg-Landau based phase-field theory of crystal nucleation
11	<u>Uehara, T.</u>	A numerical study of evolution of internal stress distribution during microstructure formation



12	<u>Xu, Z.</u> , Meakin, P.	A Generalized Phase-field approach for solute precipitation and dissolution with Gibbs-Thomson effect
13	<u>Rudnizki, J.</u> , Prah, U., Bleck, W.	Physically-based through-process model for the prediction of microstructure evolution during processing of Dual Phase steels
14	<u>Toloui, M.</u> , Militzer, M.	Phase field simulation of grain growth in the HAZ of linepipe steel
15	<u>Gladkov, S.</u> , Stiemer, M., Svendsen, B.	Numerical simulation of phase-field models using the finite element method
16	<u>Zhang, L.</u> , Steinbach, I., Du, Y.	Phase-field simulation of interdiffusion microstructure in Al-Ni diffusion couples coupled with thermodynamic and atomic mobility databases
17	<u>Guo, W.</u> , Steinbach, I.	Is Young's law a static equilibrium?
18	<u>Zeng, M.</u> , Steinbach, I.	Deformation of the strand shell during peritectic transformation