GAMM PF 25 and Materials/Microstructure modelling: Analytics & Benchmarks

February 12-14, 2025

Agenda – Overview

Wednesday, February 12th, 2025

13:00	Registration
14:00	Introduction
14:10	Contributed Session 1
15:40	Coffee Break
16:10	Contributed Session 2
18:00	Welcome Reception

Thursday, February 13th, 2025

09:00	Contributed Session 3
10:30	Coffee Break
11:00	Contributed Session 4
12:30	Lunch Break
14:00	Contributed Session 5
15:30	Coffee Break
16:00	Contributed Session 6
19:00	Conference Dinner

Friday, February 14th, 2025

09:00	Contributed Session 7
10:30	Coffee Break
11:00	Contributed Session 8
12:10	Closing

Timetable

Contributed Session 1 – February 12th, 14:10-15:40

14:10	A. Cordoba, M. Chandesris, M. Plapp	Modeling diffusion and insertion kinetics of lithium in a graphite particle using a multi-layer Cahn-Hilliard model
14:40	J. Jin, D. R. Reichman	First-Principles Phase-Field Modeling
15:00	A. Yousfi, A. Demortière, G. Boussinot	Bi-phasic lithiation/delithiation dynamics in Li-ion batteries: application of the Smoothed Boundary Method in the phase-field model
15:20	T. Kannenberg, A. Prahs, D. Schneider, B. Nestler	Chemo-mechanical coupling in phase-field methods – a benchmark study

Contributed Session 2 – February 12th, 16:10-18:00

16:10	H. Henry, E. Zembra, F. Loiseau, V. Lazarus	Convergence of phase field models of crack propagation: lattice pinning
16:40	M. Kalina, T. Schneider, M. Kästner	Phase-field modelling of ductile fatigue fracture
17:00	D. Zhao, J. Storm, M. Kaliske	Crack driving force and post-fracture behavior of phase-field fracture models: a comparative study of the Representative Crack Element approach and the Star-convex approach
17:20	A. Schlüter, R. Müller	Determination of the Effective Crack Resistance in Porous Materials Using a Fracture Phase-Field Model
17:40	F. Loiseau, E. Zembra, V. Lazarus, H. Henry	Influence of the mesh on the crack path in phase-field fracture simulations

Contributed Session 3 – February 13th, 09:00-10:30

09:00	N. Prajapati, L. Schöller, M. Reder, D. Schneider, A. Köppe, M. Selzer, B. Nestler	Recent Advances in Modeling Crack Propagation within the Multiphase-Field Framework: An Overview and New Applications Across Various Fields
09:30	F. Dammaß, K. A. Kalina, M. Kästner	Neural network meets phase-field: A hybrid approach to fracture
09:50	A. Sur, L. De Lorenzis, C. Maurini, O. Hopperstad	A variational phase-field model for ductile fracture considering stress triaxiality effects
10:10	D. B. Jadhav, D. Phansalkar, K. Weinberg, M. Ortiz, S. Leyendecker	Computational efficiency of dynamic phase field fracture simulations using a new asynchronous variational integrator

Contributed Session 4 – February 13th, 11:00-12:30

11:00	M. Thimm, K. Weinberg	Static and dynamic phase-field simulation of conchoidal fracture
11:20	S. Chattopadhyay, J. Storm, M. Kaliske	A study on the convergence of the released energy from phase-field models for brittle fracture
11:40	Y. Yang, T. D. Oyedeji, J. Ma, B. Xu	Benchmarks of Phase-field Sintering Simulation: Neck Growth and Contribution from Rigid Body Motion
12:10	R. N. Rajan, G. Boussinot	Phase-field simulation of eutectic solidification in binary alloys: A benchmark with the boundary integral technique

Contributed Session 5 – February 13th, 14:00-15:30

14:00	J. Eiken, B. Zhou, L. Koschmieder	A simple benchmark problem for automated accuracy evaluation of phase-field simulations with combined capillary and bulk driving force
14:30	L. Happel, H. P. Jain, G. Oberschelp, A. Voigt	Hidden order in epithelial tissue - multiphase field modeling and postprocessing
14:50	A. Lamperti, L. De Lorenzis	A variationally consistent and asymptotically convergent phase-field model for precipitation and dissolution
15:10	H. Verbeeck, V. Feyen, I. Bellemans, N. Moelans	Multi-phase-field modeling of the dissolution behavior of stoichiometric particles on experimentally relevant length scales

Contributed Session 6 – February 13th, 16:00-17:20

16:00	T. Isensee, A. Viardin, L. Sturz, M. Založnik, D. Tourret	Benchmark Simulations of Dendritic Growth for Quantitative Evaluation of Mesoscopic Models
16:30	A. F. Lacave, F. Welschinger, L. De Lorenzis	A phase-field anisotropic model for the multiscale analysis of short fiber reinforced polymers
16:50	V. Feyen, H. Verbeeck, N. Moelans	A Scale-bridging quantitative high driving force phase-field model applied to nucleation in pure titanium

Contributed Session 7 – February 14th, 9:00-10:30

9:00	S. Aland	Phase-field modeling of fluid-structure interaction
9:30	M. Reder, S. Daubner, N. Prajapati, D. Schneider, B. Nestler	Phase-field modelling of fluid-structure interaction considering weakly compressible media
9:50	M. Benzi, D. La Pegna, P. M. Mariano	Spectra and pseudospectra in the evaluation of material stability
10:10	M. Punke, M. Salvalaglio	New insights into grain boundary kinetics by phase-field crystal modeling

Contributed Session 8 – February 14th, 11:00-12:10

11:00	E. Radice, M. Salvalaglio, R. Bergamaschini	Phase-field model of solid-state dewetting and selective-area growth: arbitrary pattern geometry and crystal faceting
11:30	M. Bohnen, R. Müller	Phase field simulation of precipitation hardened ferroelectric material
11:50	A. R. Safi, E. Mathew, R. Chafle, B. Klusemann	A phase field study on the nucleation and evolution of the T1 phase in Al-Cu-Li alloys