**Mathis Plapp**

email: Mathis.Plapp@polytechnique.fr

NOTE: PDF files of most articles can be sent by email upon request

**Journal Articles**

**1997**

1. M. Plapp, J.-F. Gouyet: **Dendritic growth in a mean-field lattice gas model**, Phys. Rev. E **55**, 45 (1997). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract01.html)
2. M. Plapp, J.-F. Gouyet: **Interface dynamics in a mean-field lattice gas model: solute trapping, kinetic coefficient, and interface mobility**, Phys. Rev. E **55**, 5321 (1997). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract02.html)
3. M. Plapp, J.-F. Gouyet: **Surface modes and ordered patterns during spinodal decomposition of an ABv model alloy**, Phys. Rev. Lett. **78**, 4970 (1997). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract03.html)

**1998**

4. A. Karma, M. Plapp: **Spiral surface growth without desorption**, Phys. Rev. Lett. **81**, 4444 (1998). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract04.html) Manuscript: [cond-mat/9809358](http://www.arxiv.org/abs/cond-mat/9809358)

**1999**

5. M. Plapp, J.-F. Gouyet: **Spinodal decomposition of an ABv model alloy: Patterns at unstable surfaces**, Eur. Phys. J. B **9**, 267 (1999). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract05.html) Manuscript: [cond-mat/9906301](http://www.arxiv.org/abs/cond-mat/9906301)
6. M. Plapp, A. Karma: **Eutectic Colony Growth: A Stability Analysis**, Phys. Rev. E **60**, 6865 (1999). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract06.html) Manuscript: [cond-mat/9812376](http://www.arxiv.org/abs/cond-mat/9812376)

**2000**

7. M. Plapp, A. Karma: **Multiscale random-walk algorithm for simulating interfacial pattern formation**, Phys. Rev. Lett. **84**, 1740 (2000). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract07.html) Manuscript: [cond-mat/9906370](http://www.arxiv.org/abs/cond-mat/9906370)
8. A. Karma, Y. H. Lee, M. Plapp: **Three-dimensional dendrite tip morphology at low undercooling**, Phys. Rev. E **61**, 3996 (2000). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract08.html) Manuscript: [cond-mat/9909021](http://www.arxiv.org/abs/cond-mat/9909021)
9. M. Plapp, A. Karma: **Multiscale Finite-Difference-Diffusion-Monte-Carlo method for simulating dendritic solidification**, J. Comp. Phys. **165**, 592 (2000). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract09.html) Manuscript: [cond-mat/0002015](http://www.arxiv.org/abs/cond-mat/0002015)

**2001**

10. T. S. Lo, A. Karma, M. Plapp: **Phase-field modeling of microstructural pattern formation during directional solidification of peritectic alloys without morphological instability**, Phys. Rev. E. **63**, 031504 (2001). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract10.html) Manuscript: [cond-mat/0005507](http://www.arxiv.org/abs/cond-mat/0005507)

**2002**

11. J. Bragard, A. Karma, Y. H. Lee, M. Plapp: **Linking Phase-Field and Atomistic Simulations to Model Dendritic Solidification in Highly Undercooled Melts**, Interface Science **10**, 121 (2002). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract11.html) Manuscript: [cond-mat/0112163](http://www.arxiv.org/abs/cond-mat/0112163)
12. S. Akamatsu, M. Plapp, G. Faivre, A. Karma: **Pattern stability and trijunction motion in eutectic solidification**, Phys. Rev. E **66**, 030501(R) (2002). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract12.html) Manuscript: [cond-mat/0202535](http://www.arxiv.org/abs/cond-mat/0202535)
13. M. Plapp, A. Karma: **Eutectic colony formation: A phase field study**, Phys. Rev. E **66**, 061608 (2002). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract13.html) Manuscript: [cond-mat/0112194](http://www.arxiv.org/abs/cond-mat/0112194)

**2003**

14. T. S. Lo, S. Dobler, M. Plapp, A. Karma, W. Kurz: **Two-phase microstructure selection in peritectic solidification: from island banding to coupled growth**, Acta Mater. **51**, 599 (2003). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract14.html)
15. K. Kolwankar, M. Plapp, B. Sapoval: **Percolation-dependent reaction time in the etching of disordered solids**, Europhys. Lett. **62**, 519 (2003). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract15.html) Manuscript: [cond-mat/0211296](http://www.arxiv.org/abs/cond-mat/0211296)
16. R. Folch, M. Plapp: **Towards a quantitative phase-field modeling of two-phase solidification**, Phys. Rev. E **68**, 010602(R) (2003). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract16.html) Manuscript: [cond-mat/0303449](http://www.arxiv.org/abs/cond-mat/0303449)
17. M.-O. Bernard, M. Plapp, J.-F. Gouyet: **A mean-field kinetic lattice gas model of electrochemical cells**, Phys. Rev. E **68**, 011604 (2003). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract17.html) Manuscript: [cond-mat/0303072](http://www.arxiv.org/abs/cond-mat/0303072)
18. J.-F. Gouyet, M. Plapp, W. Dieterich, P. Maass: **Description of far-from-equilibrium processes by mean-field lattice gas models**, Adv. Phys. **52**, 523-638 (2003). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract18.html)

**2004**

19. M. Plapp, M. Dejmek: **Stability of hexagonal solidification patterns**, Europhysics Lett. **65**, 276 (2004). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract19.html) Manuscript: [cond-mat/0207314](http://www.arxiv.org/abs/cond-mat/0207314)
20. A. Karma, M. Plapp: **New insights into the morphological stability of eutectic and peritectic coupled growth**, JOM **56**, 4 p. 28-32 (2004). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract20.html)
21. S. Dobler, T. S. Lo, M. Plapp, A. Karma, and W. Kurz: **Peritectic coupled growth**, Acta Mat. **52**, 2795 (2004). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract21.html)
22. S. Akamatsu, M. Plapp, G. Faivre, and A. Karma: **Overstability of lamellar eutectic growth below the minimum-undercooling spacing**, Met. Mat. Trans **35A**, 1815 (2004). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract22.html)
23. B. Echebarria, R. Folch, A. Karma, M. Plapp: **Quantitative phase field model of alloy solidification**, Phys. Rev. E **70**, 061604 (2004). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract23.html) Manuscript: [cond-mat/0404164](http://www.arxiv.org/abs/cond-mat/0404164)

**2005**

24. R. Folch, M. Plapp: **Quantitative phase-field modeling of two-phase solidification**, Phys. Rev. E **72**, 011602 (2005). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract24.html) Manuscript: [cond-mat/0502267](http://www.arxiv.org/abs/cond-mat/0502267)
25. A. Wouterse, M. Plapp, A. P. Philipse: **On the caging number of two- and three-dimensional hard spheres**, J. Chem. Phys. **123**, 054507 (2005). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract25.html)

**2007**

26. M. Plapp: **Three-dimensional phase-field simulations of directional solidification**, J. Cryst. Growth **303**, 49 (2007). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract26.html)
27. E. Meca, M. Plapp: **Phase-field study of the cellular bifurcation in dilute binary alloys**, Metall. Mater. Trans. A **38**, 1407 (2007). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract27.html)

**2008**

28. A. Parisi, M. Plapp: **Stability of lamellar eutectic growth**, Acta Materialia **56**, 1348 (2008). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract28.html)
29. J. Mellenthin, A. Karma, M. Plapp: **Phase-field crystal study of grain-boundary premelting**, Phys. Rev. B **78**, 184110 (2008). Manuscript: [arXiv:0807.5083](http://arxiv.org/abs/0807.5083)

**2009**

30. L. Amirouche and M. Plapp: **Phase-field modeling of the discontinuous precipitation reaction**, Acta Materialia **57**, 237 (2009). Manuscript: [arXiv:0809.0642](http://arxiv.org/abs/0809.0642)
31. M. Asta, C. Beckermann, A. Karma, W. Kurz, R. Napolitano, M. Plapp, G. Purdy, M. Rappaz, R. Trivedi: **Solidification microstructures and solid-state parallels: Recent developments, future directions**, Acta Materialia **57**, 941 (2009). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract31.html)
32. T. Kaempfer, M. Plapp: **Phase-field modeling of dry snow metamorphism**, Phys. Rev. E **79**, 031502 (2009). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract32.html)

**2010**

33. A. Marrocco, H. Henry, I. B. Holland, M. Plapp, S. J. Seror, B. Perthame: **Models of self-organizing bacterial communities and comparisons with experimental observations**, Math. Model. Nat. Phenom. **5**, 148 (2010). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract33.html)
34. S. Gurevich, A. Karma, M. Plapp, R. Trivedi: **Phase-field study of three-dimensional steady-state growth shapes in directional solidification**, Phys. Rev. E **81**, 011603 (2010). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract34.html)
35. M. Perrut, A. Parisi, S. Akamatsu, S. Bottin-Rousseau, G. Faivre, M. Plapp: **Role of transverse temperature gradients in the generation of lamellar eutectic solidification patterns**, Acta Materialia **58**, 1761 (2010). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract35.html)
36. S. Le Roy, E. Søndergård, I. S. Nerbø, M. Kildemo, M. Plapp: **Diffuse-interface model for nanopatterning induced by self-sustained ion-etch masking**, Phys. Rev. B **81**, 161401(R) (2010). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract36.html). Manuscript: [arXiv:1003.1274](http://arxiv.org/abs/1003.1274)
37. A. Parisi, M. Plapp: **Defects and multistability in eutectic solidification patterns**, EPL **90**, 26010 (2010). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract37.html). Manuscript: [arXiv:1005.4466](http://arxiv.org/abs/1005.5566)
38. K.-A. Wu, M. Plapp, P. W. Voorhees: **Controlling crystal symmetries in phase-field crystal models**, J. Phys.: Condens. Matter **22**, 364102 (2010). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract38.html). Manuscript: [arXiv:1008.4019](http://arxiv.org/abs/1008.4019)
39. S. Nguyen, R. Folch, V. K. Verma, H. Henry, M. Plapp: **Phase-field simulations of viscous fingering in shear-thinning fluids**, Phys. Fluids **22**, 103102 (2010). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract39.html). Manuscript: [arXiv:0912.0148](http://arxiv.org/abs/0912.0148)

**2011**

40. M. Plapp: **Remarks on some open problems in phase-field modelling of solidification**, Phil. Mag. **91**, 25 (2011). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract40.html). Manuscript: [arXiv:1004.4502](http://arxiv.org/abs/1004.4502)
41. A. Choudhury, M. Plapp, B. Nestler: **Theoretical and numerical study of lamellar eutectic three-phase growth in ternary alloys**, Phys. Rev. E **83**, 051608 (2011). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract41.html). Manuscript: [arXiv:1103.4806](http://arxiv.org/abs/1103.4806)
42. M. Serefoglu, R. E. Napolitano, M. Plapp: **Phase-field investigation of rod eutectic morphologies under geometrical confinement**, Phys. Rev. E **84**, 011614 (2011). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract42.html).
43. M. Plapp: **Unified derivation of phase-field models for alloy solidification from a grand-potential functional**, Phys. Rev. E **84**, 031601 (2011). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract43.html). Manuscript: [arXiv:1105.1670](http://arxiv.org/abs/1105.1670)
44. M. Nicoli, M. Plapp, H. Henry: **Phase-field models with tensorial mobilities for accurate solution of two-phase transport problems**, Phys. Rev. E **84**, 046707 (2011). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract44.html). Manuscript: [arXiv:1111.5268](http://arxiv.org/abs/1111.5268)

**2012**

45. I. Steinbach, L. Zhang, M. Plapp: **Phase-field model with finite interface dissipation**, Acta Materialia **60**, 2689 (2012). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract45.html).
46. H. Henry, J. Mellenthin, M. Plapp: **An orientation-field model for polycristalline solidification with a singular coupling between order and orientation**, Phys. Rev. B **86**, 054117 (2012). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract46.html). Manuscript: [arXiv:1207.6526](http://arxiv.org/abs/1207.6526)
47. U. Thiele, A. Archer, M. Plapp: **Thermodynamically consistent description of the hydrodynamics of free surfaces covered by insoluble surfactants of high concentration**, Physics of Fluids **24**, 102107 (2012). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract47.html). Manuscript: [arXiv:1202.1688](http://arxiv.org/abs/1202.1688)
48. I. Steinbach, M. Plapp: **Pearlite revisited**, Continuum Mechanics and Thermodynamics **24**, 665-673 (2012). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract48.html).

**2013**

49. J. Valloton, J. A. Dantzig, M. Plapp, M. Rappaz: **Modeling of peritectic coupled growth in Cu-Sn alloys**, Acta Mater. **61**, 5549-5560 (2013). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract49.html).

**2014**

50. Y. Ma, M. Plapp: **Phase-field simulations and geometrical characterization of cellular solidification fronts**, J. Cryst. Growth **385**, 140-147 (2014). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract50.html).
51. A. Slimani, A. Iratni, H. Henry, M. Plapp, J.-N. Chazalviel, F. Ozanam, N. Gabouze: **Macropore formation in p-type silicon: toward the modeling of morphology**, Nanoscale Res. Lett. **9**, 585 (2014). [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract51.html).

**Preprints**

J. Gorchon, J. Curiale, A. Cebers, A. Lemaitre, N. Vernier, M. Plapp, V. Jeudy: **Controlling Magnetic Domain Patterns with an Electrical Current**, [Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract52.html), Manuscript: [arXiv:1409.1007](http://arxiv.org/abs/1409.1007)

**Book Chapters**

 M. Plapp: **Phase-field models**, pp. 129-175 in "Multiphase microfluidics: The Diffuse Interface Model", CISM Courses and Lectures vol. 538, edited by R. Mauri, SpringerWienNewYork (2012).
([Manuscript (PDF)](http://pmc.polytechnique.fr/pagesperso/mp/publications/CISM_Plapp.pdf), 320 kB)

**Conference Proceedings**

 F. Dunlop, M. Plapp: **Scaling profiles of a spreading drop from Langevin or Monte-Carlo dynamics**, pp. 303-308 in "On Three Levels : Micro-, Meso-, and Macro-Approaches in Physics", edited by M. Fannes et al., Plenum Press, New-York (1994).
([PostScript file](http://pmc.polytechnique.fr/pagesperso/mp/publications/leuven.ps.gz), gzipped, 50 kB)

 M. Plapp, J.-F. Gouyet: **Interface dynamics in a mean-field lattice gas model: Dendritic growth**, pp. 21-28 in "Proceedings of the 8th Joint EPS-APS International Conference on Physics Computing", edited by P. Borcherds, M. Bubak, A. Maksymowicz, Academic Computer Centre CYFRONET, Krakow, Poland (1996).
([PostScript file](http://pmc.polytechnique.fr/pagesperso/mp/publications/pologne.ps.gz) with figures, gzipped, 63 kB)

 J.-F. Gouyet, M. Plapp: **Interface dynamics in a mean-field lattice gas model**, paper presented at the ISMANAM 1997 conference, Spain; Materials Science Forum Vols. **269-272**, pp. 681-686 (1998).
([Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstract4.html), [PostScript file](http://pmc.polytechnique.fr/pagesperso/mp/publications/ismanam.ps.gz) with figures, gzipped, 100 kB)

 J.-F. Gouyet, M. Plapp: **Vacancy Mediated Spinodal Decomposition of a Two-component Droplet: Pattern Formation at Surfaces**, paper presented at 7th International Workshop and School on Nonlinear Dynamics and Complex Systems, sept 7-10, 1999, Minsk, Belarus; Nonlinear Phenomena in Complex Systems **3**:3, pp. 220-225 (2000).

 M. Plapp: **Formation de colonies eutectiques: simulations et théorie**, Rencontre du Non-Linéaire IHP-Paris 2000, Paris Onze Edition, France, pp. 7-10 (2000).

 A. Karma, Y. H. Lee, M. Plapp: **Phase-Field Modeling of Dendritic Evolution in Undercooled Melts**, pp. 113-118 in "Proceedings of the Merton C. Flemings Symposium on Solidification and Materials Processing", edited by R. Abbaschian, H. Brody and A. Mortensen, The Minerals, Metals and Materials Society (TMS) (2001).
([Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstractc.html))

 M.-O. Bernard, M. Plapp, J.-F. Gouyet: **A lattice gas model of electrochemical cells: Mean-field kinetic approach**, contributed paper for the FRACTAL 2002 conference, Spain; pp. 235-246 in "Emergent Nature - Patterns, Growth and Scaling in the Sciences", edited by M. M. Novak, World Scientific, Singapore (2001).
([Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstractj.html), manuscript as [gzipped PostScript](http://pmc.polytechnique.fr/pagesperso/mp/publications/bernard.ps.gz), as [PDF file](http://pmc.polytechnique.fr/pagesperso/mp/publications/bernard.pdf).

 R. Folch, M. Plapp: **Phase-field Modeling of Eutectic Solidification: From Oscillations to Invasion**, Proceedings of the workshop "Computational Physics of Transport and Interface Dynamics", Dresden, Germany, March 2002; pp. 182-189 in "Interface and Transport Dynamics - Computational Modelling", edited by H. Emmerich, B. Nestler, and M. Schreckenberg, Lecture Notes in Computational Science and Engineering **32**, Springer, Berlin (2003).
([Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstractf.html); the manuscript can be downloaded from the [arXiv.org e-Print archive](http://www.arxiv.org) as [cond-mat/0206237](http://www.arxiv.org/abs/cond-mat/0206237))

 M. Dejmek, R. Folch, A. Parisi, M. Plapp: **Three-dimensional phase-field simulations of directional solidification**, pp. 387-392 in "Solidification processes and microstructures: A symposium in honor of Prof. W. Kurz", edited by M. Rappaz, C. Beckermann, and R. Trivedi, The Minerals, Metal and Materials Society, Warrendale, PA (2004).
([Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstractq.html); the manuscript can be downloaded from the [arXiv.org e-Print archive](http://www.arxiv.org) as [cond-mat/0401250](http://www.arxiv.org/abs/cond-mat/0401250))

 A. Parisi, M. Plapp, S. Akamatsu, S. Bottin-Rousseau, M. Perrut, and G. Faivre: **Three-dimensional phase-field simulations of eutectic solidification and comparison to in situ experimental observations**, pp. 417-424 in "Modeling of Casting, Welding, and Advanced Solidification Processes - XI", edited by C.-A. Gandin and M. Bellet, The Minerals, Metal and Materials Society, Warrendale, PA (2006).
([Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstractv.html); [PDF version of the manuscript](http://pmc.polytechnique.fr/pagesperso/mp/publications/mcwasp.pdf))

 M. Plapp: **Phase-field simulations of crystal growth**, pp. 247-254 in "Selected topics on crystal growth - 14th International Summer School on Crystal Growth", edited by M. Wang, K. Tsukamoto, and D. Wu, AIP Conference Proceedings Vol. 1270, Melville, NY (2010).
([Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstractw.html); [PDF version of the manuscript](http://pmc.polytechnique.fr/pagesperso/mp/publications/dalian.pdf))

 L. Amirouche, M. Plapp: **On the effect of bulk diffusion on the initiation of the discontinuous precipitation reaction: phase-field simulations**, pp. 549-554 in "Phase Transformations in Matierals", Solid State Phenomena **172-174** (2011).
([Abstract](http://pmc.polytechnique.fr/pagesperso/mp/publications/abstractx.html); [PDF version of the manuscript](http://pmc.polytechnique.fr/pagesperso/mp/publications/SSP.172-174.549.pdf))

**Miscellaneous**

 M. Plapp, Habilitation manuscript (in french): [**Modèles de champ de phase pour l'évolution de structures complexes**](http://pmc.polytechnique.fr/pagesperso/mp/publications/HdR_Plapp.pdf)

 **R. Trivedi, A. Karma, T. S. Lo, P. Mazumder, J. S. Park, M. Plapp:** [**Dynamic Pattern Formation in the Two-Phase Region of Peritectic Systems**](http://pmc.polytechnique.fr/pagesperso/mp/Peri/default.htm)**, contributed paper for the 2nd workshop on Solidification Microstructures, Zermatt, July 5-10, 1998 (extracted from a CD-Rom edited by R. Trivedi and M. Rappaz, Ecole Polytechnique Fédérale de Lausanne)**

 **A. Karma, M. Plapp:** [**Modeling of Microstructural Pattern Formation in Directional Solidification**](http://pmc.polytechnique.fr/pagesperso/mp/T3E_Report/karma.html)**, NERSC Annual Report, p. 55, Lawrence Berkeley National Laboratory (1998)**

[**Back to HomePage**](http://pmc.polytechnique.fr/pagesperso/mp/Welcome.html)

## Mathis Plapp

email: Mathis.Plapp@polytechnique.fr

## Presentations and Conferences

# International

## Invited Talks

 Condensed Matter in Paris 2014, Paris, France, august 24-29, 2014: "Phase-field models for the growth of liquid crystals and polycrystals: the quest for an orientation field".

 4th International Conference on Advances in Solidification Processes (ICASP 4), Old Windsor, UK, july 8-11, 2014: "Phase-field simulations of eutectic solidification: Pattern dynamics in three dimensions".

 Workshop on Complex Fluids in Evolving Domains, Leeds, UK, august 19-21, 2013: "Equilibrium and growth shapes of fiber-covered surfaces".

 12th Joint European Thermodynamics Conference (JETC 2013), Brescia, Italy, july 1-5, 2013: "Grand-canonical formulation of phase-field models for alloy solidification".

 TMS (The Minerals, Metals and Materials Society) meeting, San Antonio, TX, USA, march 3-7, 2013: "Phase-field simulations and geometrical analysis of cellular solidification fronts".

 The 7th International Workshop on Modelling in Crystal Growth (IWMCG7), Taipei, Taiwan, october 28-31, 2012: "Phase-field simulations and geometrical analysis of cellular solidification fronts".

 Directionally Solidified Eutectic Ceramics IV, Washington, DC, USA, october 14-17, 2012: "Phase-field modeling of pattern dynamics in eutectic solidification".

 Nanoscale Pattern Formation at Surfaces, El Escorial, Spain, september 18-22, 2011: "Ion abrasion induced pattern formation on compound surfaces" (in replacement of Elin Søndergård).

 ICIAM (International Congress on Industrial and Applied Mathematics), Vancouver, Canada, July 18-22, 2011: "Dynamics of eutectic solidification patterns: Insights from phase-field simulations".

 TMS (The Minerals, Metals and Materials Society) meeting, San Diego, CA, USA, february 27-march 3, 2011: "Unified derivation of phase-field models for alloy solidification from a grand potential functional".

 The 16th International Conference on Crystal Growth (ICCG16), Beijing, China, August 8-13, 2010: "Role of transverse temperature gradients in the generation of lamellar eutectic solidification patterns".

 Solid-Solid Phase Transformation in Inorganic Materials (PTM2010), Avignon, France, June 6-12, 2010: "Phase-field modelling of the discontinuous precipitation reaction".

 4th International Conference on Solidification Science and Processing (ICSSP4), Chennai, India, November 20-23, 2009: "Phase-field simulations of the lamella-to-rod transition in eutectic solidification".

 CECAM workshop Classical Density Functional Theory Methods in Soft and Hard Matter, Lausanne, October 21-23, 2009: "Phase-field crystal study of grain boundary premelting".

 CECAM workshop Multiscale modeling of heterogeneous nucleation and structure formation in colloids and metals, Zürich, Switzerland, April 15-17, 2009: "Phase-field crystal study of grain boundary premelting".

 TMS (The Minerals, Metals and Materials Society) meeting, San Francisco, CA, USA, february 15-19, 2009: "Phase-field modelling of liquid crystal solidification".

 Potential Theory and Analysis of Growth Processes, Orléans, France, January 12-16, 2009: "Modelling crystal growth with the phase-field method".

 Annual meeting of the Linné FLOW centre, Stockholm, Sweden, January 13-14, 2009: "Phase-field models with nematic order parameters".

 International Focus Workshop on Phase Field Simulations: Material Science meets Biology and Medicine, Dresden, Germany, November 12-14, 2008: "Phase-field models with nematic order parameters".

 Symposion on Trends in Applications of Mathematics to Mechanics (STAMM), Levico Terme, Italy, September 22-25, 2008: "Phase-field models for moving boundary problems: from the physics of phase transitions to applications in mechanics".

 Multi-scale modeling of moving interfaces in materials, Leuven, Belgium, july 2-4, 2008: "Phase-field crystal study of grain boundary premelting".

 European Congress on Advanced Materials and Processes (EUROMAT), Nuremberg, Germany, september 10-13, 2007: "Three-dimensional phase-field simulations of cellular solidification microstructures" (keynote lecture).

 Workshop "Evolution of Interfaces and Applications", Roscoff, France, may 9-11, 2007: "Phase-field simulations of pattern formation in solidification".

 Workshop "Polymorphism in Condensed Matter", Max-Plack-Institute for the physics of complex systems, Dresden, Germany, november 13-17, 2006: "On phase-field models for polycristalline solidification".

 Symposium in honor of Rohit Trivedi, "Critical Issues and Future Directions in Solidification Science", Iowa State University, Ames, Iowa, USA, september 20-22, 2006: "Pattern Dynamics".

 The 5th International Workshop on Modeling in Crystal Growth, Bamberg, Germany, september 10-13, 2006: "Three-dimensional phase-field simulations of directional solidification".

 Workshop "Mathematical Biology", Mathematisches Forschungszentrum Oberwolfach, Germany, may 14-19, 2006: "Modelling of moving boundaries with the phase-field method: Interfaces, membranes, and skins".

 European Congress on Advanced Materials and Processes (EUROMAT), Prague, Czech Republic, september 5-8, 2005: "Quantitative phase-field simulations of solidification microstructures" (keynote lecture).

 The 12th International Conference on Rapidly Quenched and Metastable Materials, Jeju, South Korea, august 21-26, 2005: "Three-dimensional phase-field simulations of eutectic coupled growth".

 XXV Dynamics Days Europe, Berlin, Germany, july 25-28, 2005: "Pattern formation during solidification: Insights from phase-field modelling".

 TMS (The Minerals, Metals and Materials Society) meeting, San Francisco, CA, USA, february 13-17, 2005: "Morphological stability of lamellar and rod eutectic growth".

 3e Congrès International en Sciences et Génie des Matériaux (CISGM3), Jijel, Algeria, May 25-27, 2004: "Modélisation de la croissance cristalline par la méthode du champ de phase" (plenary talk).

 DFG Schwerpunktprogramm workshop "Modelling of phase transition and interface dynamics across the length scales", Fachhochschule Karlsruhe, Germany, January 28-30, 2004: "Multi-scale problems in solidification: dendritic and eutectic growth".

 DFG Schwerpunktprogramm workshop "Solidification and Simulation II", Fachhochschule Karlsruhe, Germany, January 27, 2004: "Trijunction motion and pattern stability in binary and ternary eutectic alloys".

 IHP Workshop on Dynamics, Growth, and Singularities of Continuous Media, Paris, France, July 7 - 13, 2003: "Simulating free-boundary problems with the phase-field method".

 CECAM Workshop on Crystal-Melt Interfaces: Structure, Thermodynamics and Growth, Lyon, France, June 23 - 25, 2003: "Phase-field modeling of eutectic solidification".

 The 14th American Conference on Crystal Growth and Epitaxy, Seattle, USA, August 4 - 9, 2002: "Quantitative three-dimensional phase-field simulations of dendritic growth".

 International Workshop on Computational Physics of Transport and Interface Dynamics, Dresden, Germany, February 18 - March 8, 2002: "Multiscale Finite-Difference-Diffusion-Monte-Carlo method for simulating interfacial pattern formation".

 Materials Research Society (MRS) 2001 Fall Meeting, Boston, november 25-29, 2001: "Phase-field modeling of solidification and epitaxial growth".

 Workshop on Thermodynamic and Structural Properties of Materials (TSPM), Avignon, France, september 9-14, 2001: "Phase-field simulations of solidification microstructures".

## Contributed Talks

 EUROMAT (European Congress on Advanced Materials and Processes), Montpellier, France, september 12-15, 2011: "Phase-field simulations and geometrical analysis of cellular solidification fronts".

 EUROMAT (European Congress on Advanced Materials and Processes), Glasgow, UK, september 7-10, 2009: "Phase-field crystal study of grain boundary premelting", and "Phase-field simulations of the lamellar-to-rod transition in eutectic solidification".

 2nd Symposion on Phase-field modelling in Materials Science, Rolduc Abbey, Netherlands, august 30-september 2, 2009: "Phase-field models with nematic order parameters".

 TMS (The Minerals, Metals and Materials Society) meeting, New Orleans, LA, USA, march 9-13, 2008: "Phase-field modelling of the discontinuous precipitation reaction".

 European Congress on Advanced Materials and Processes (EUROMAT), Nuremberg, Germany, september 10-13, 2007: "Modelling of the discontinuous precipitation reaction with the phase-field method" (highlight lecture).

 MCWASP XI (Modelling of Casting, Welding and Advanced Solidification Processes XI), Opio, France, may 28 - june 2, 2006: "Three-dimensional phase-field simulations of eutectic solidification and comparison to in situ experimental observations".

 TMS (The Minerals, Metals and Materials Society) meeting, San Antonio, TX, USA, march 12-16, 2006: "Phase-field study of the cellular bifurcation in dilute binary alloys".

 European Congress on Advanced Materials and Processes (EUROMAT), Prague, Czech Republic, september 5-8, 2005: "Three-dimensional phase-field simulations of eutectic solidification".

 DPG (Deutsche Physikalische Gesellschaft) Tagung Berlin, Germany, march 4-9, 2005: "Phase-field study of the cellular bifurcation in dilute binary alloys".

 The Fourteenth international conference on crystal growth (ICCG-14), Grenoble, France, august 9-13, 2004: "Instabilities of hexagonal solidification patterns".

 TMS (The Minerals, Metals and Materials Society) meeting, Charlotte, NC, USA, march 15-19, 2004: "Three-dimensional phase-field simulations of directional solidification".

 DPG (Deutsche Physikalische Gesellschaft) Tagung Regensburg, Germany, march 8-12, 2004: "Dreidimensionale Phasenfeld-Simulationen der Erstarrung eutektischer Legierungen", and "Instabilitäten hexagonaler Erstarrungsmuster".

 Fractals Network Meeting, Sils Maria, Switzerland, march 26-31, 2000: "Scaling transients in dendritic growth at low undercooling".

 MRS (Materials Research Society) 1999 Fall Meeting, Boston, November 29-December 3, 1999: "A diffusion Monte Carlo algorithm for simulations of dendritic crystal growth".

 APS (American Physical Society) Centennial Meeting, Atlanta, March 20-26, 1999: "Spiral Surface Growth Without Desorption".

 MRS (Materials Research Society) 1998 Fall Meeting, Boston, November 30-December 4, 1998: "Spiral Surface Growth Without Desorption".

 Second Workshop on Solidification Microstructures, Zermatt, Switzerland, July 5-10, 1998: "Eutectic colony formation: A stability analysis".

 8th Joint EPS-APS International Conference on Physics Computing, Krakow, Poland, September 17-21, 1996: "Interface dynamics in a mean-field lattice gas model: Dendritic growth".

 Tagung der Deutschen Physikalischen Gesellschaft, Regensburg, Germany, March 1996: "Dendritisches Wachstum in einem mean-field- Gittergasmodell".

 Workshop on Instabilities, Chaos and Franctals in Crystal Growth, ETH Zurich, Switzerland, March 11-13, 1996: "Dendritic growth in a mean-field lattice gas model".

## Seminars and Colloquia

 Seminar at Matematics Department, Southern Methodist University, Dallas, TX, "Phase-field models for microstructure formation in materials", March 8, 2013.

 Seminar "Advances in Materials", Institut des Matériaux, EPFL Lausanne, Switzerland, "Phase-field models for microstructure formation in materials", October 8, 2012.

 Seminar at Centro de Fisica Teorica e Computational, Universidade de Lisboa, Portugal, "Phase-field simulations of pattern formation in solidification", November 4, 2009.

 Seminar at Institut für Materialphysik im Weltraum, DLR Köln, Germany, "Phase-field crystal study of grain boundary premelting", September 29, 2009.

 Seminar at Department of Chemical Engineering, University of Tarragona, Spain, "Phase-field models for the evolution of complex structures", May 8, 2009.

 Seminar at Department of Mathematics, Darmstadt University of Technology, Germany, "Phase-field modelling of pattern formation in solidification and of other moving boundary problems, April 24, 2009.

 Seminar ICAMS, University of Bochum, Germany, "Grain-boundary premelting in the phase-field crystal model", December 1, 2008.

 Seminar, Institute for Solid State Research (IFF), Forschungszentrum Jülich, Germany: "Pattern formation in solidification: New insights from phase-field simulations", October 9, 2008.

 Kolloquium at Otto-von-Guericke-Universität Magdeburg, Germany: "Phasenfeld-Simulationen der Strukturbildung beim Kristallwachstum", November 21, 2006.

 Seminar at Institut für angewandthe Mathematik, Universität Bonn, Germany: "Multi-Scale random walk algorithm for simulating dendritic solidification", April 26, 2005.

 Seminar at Institut für Gesteinshüttenkunde, RWTH Aachen, Germany: "Phasenfeld-Simulationen der gerichteten Erstarrung", January 20, 2005.

 Seminar at DLR, Köln, Germany: "Dreidimensionale Phasenfeld-Simulationen der Erstarrung: Dendriten, Zellen, Eutektika", June 23, 2004.

 Seminar at Max-Planck-Institut für Physik Komplexer Systeme, Dresden, Germany: "Simulating free boundary problems with the phase field method", April 28, 2004.

 Seminar at Ames National Lab, Ames, Iowa, USA: "Phase-field simulations of directional solidification", May 19, 2003.

 Seminar at Access e.V., RWTH Aachen, Germany: "Phasenfeld-Simulationen der freien und gerichteten Erstarrung: Ein Multi-Skalen-Problem", November 6, 2002.

 Seminar at Otto-von-Guericke Universitaet, Magdeburg, Germany: "Phasenfeld-Simulationen von Musterbildung beim Kristallwachstum", October 23, 2000.

 Seminar at Universitat de Barcelona, Spain: "Phase-field simulations of pattern formation during crystal growth", September 18, 2000.

 Seminar at Access e.V., RWTH Aachen, Germany: "Phasenfeld-Simulationen von Musterbildung beim Kristallwachstum: Direkter Vergleich mit Theorie und Experimenten", June 19, 2000.

 Seminar at EPFL Lausanne, Switzerland: "Numerical simulations of crystal growth using the phase-field method", May 17, 2000.

 Seminar at Northeastern University, Boston, USA: "A dynamical mean-field approach for pattern formation processes in lattice gas models", November 4, 1997.

 Seminar SFB 513, Universitaet Konstanz, Germany: "Interface dynamics in a mean-field lattice-gas model and application to dendritic growth", October 22, 1996.

## Courses in Summer Schools

 Summer school "Simulation within the field of production - Microscopic and macroscopic simulation approaches", KIT Karlsruhe, Germany, October 13-14, 2010: "Phase-field models for the evolution of complex structures".

 The 14th international summer school of crystal growth (ISSCG14), Dalian, China, August 1-7, 2010: "Phase-field simulations of crystal growth".

 Modelling in Materials Science: Theory and Applications, CCMX Summer School Course, EPFL Lausanne, Switzerland, August 26-28, 2009: "Phase-field simulations of pattern formation in solidification".

 Multiphase Microfluidics - The Diffuse Interface Model, June 15-19, 2009, Centre International pour les Sciences Mecaniques, Udine, Italy, "Phase-field models: from the physics of phase transitions to the evolution of complex structures".

## Meetings

 Computational Materials Science Network (CMSN) meeting, Oak Ridge National Lab, Oak Ridge, TN, USA, march 18-19, 2004: "Three-dimensional phase-field simulations of directional solidification".

 CETSOL meeting on phase-field modeling, Magdeburg, Germany, may 3, 2002: "Three-dimensional phase-field simulations of directional solidification".

# En France

## Organisation de conférences

 Symposion "Solidification" aux Journées annuelles de la Société Française de Métallurgie et de Matériaux, Paris, 4-6 juin 2008 (avec Charles-André Gandin et Gabriel Faivre).

 Minicolloque "Méthodes de champ de phase" aux Journées de la Matière Condensée (JMC 8), Marseille, 27-30 août 2002 (avec Yann Le Bouar).

 Journée thématique sur "Méthodes de champ de phase et interfaces diffuses" du GDR 2258 "Phénomènes de Transport et Transitions de Phase en Micropesanteur", ESPCI, Paris, le 27 mai 2002.

## Conférences invitées

 Congrès Français de Mécanique, Besançon, 28 août-2 septembre 2011: "Modélisation des microstructures de solidification par la méthode du champ de phase".

## Communications orales

 Rencontre de Physique Statistique, ESPCI, Paris, 26-27 janvier 2006: "Formes d'équilibre et de croissance de surfaces fibrées".

 Journées de la Matière Condensée, Nancy, 30 août-3 septembre 2004: "Algorithme Monte Carlo multi-échelle pour simuler la croissance dendritique".

 Journées de la Matière Condensée, Marseille, 27-30 août 2002: "Instabilités de cellules de solidification en trois dimensions".

 Rencontre de Physique Statistique, ESPCI, Paris, 25-26 janvier 2001: "Méthode Monte Carlo multi-échelle pour simulations numériques de la croissance dendritique".

 Journées de la Matière Condensée, Université de Poitiers, 29 août-1 septembre 2000: "Modes de surface dans la décomposition spinodale d'un mélange binaire".

 Journées du Non-linéaire, Institut Henri Poincaré, Paris, 9-10 mars 2000: "Formation de colonies eutectiques: Simulations et théorie".

 Rencontre de Physique Statistique, ESPCI, Paris, 25-26 janvier 1996: "Croissance dendritique dans un gaz sur réseau en approximation de champ moyen".

## Affiches

 Journées de la Matière Condensée, Université de Poitiers, 29 aout-1 septembre 2000: "Simulations quantitatives de la croissance dendritique en trois dimensions", "Formation de spirales durant la croissance épitaxiale: le régime sans désorption".

 Journées d'automne de la SF2M, Paris, 2-5 novembre 1999: "Simulations of dendrite tip morphology at low undercoolings".

## Séminaires

 **Modèles de champ de phase pour la croissance de structures arborescentes**: Laboratoire de Physique des Solides, Orsay, 2 octobre 2012; Laboratoire SVI, Saint Gobain Recherche, Aubervilliers, 9 décembre 2010; Laboratoire PMMH, ESPCI Paris, 8 octobre 2010; IUSTI, Marseille, 23 avril 2010; Laboratoire MSC, Paris, 26 janvier 2009.

 **Modélisation de la solidification directionnelle en trois dimensions par la méthode du champ de phase**: L2MP, Marseille, 29 mai 2008.

 **Modélisation de la croissance cristalline par la méthode du champ de phase**: CEA, Bruyères-le-Châtel, 26 mai 2008; Laboratoire de Photonique et de Nanostructures, Marcoussis, 7 juin 2006; Laboratoire d'Electrochimie et de Chimie Analytique (LECA), Ecole Nationale Supérieure de Chimie de Paris, 14 novembre 2003; Institut de Recherche sur les Phénomènes Hors Equilibre (IRPHE), Marseille, 16 février 2001; Laboratoire PMC, Ecole Polytechnique, Palaiseau, 22 juin 2000; Laboratoire de Mathématiques et ses Applications, Ecole Normale Supérieure de Cachan, 8 juin 2000; Centre de Recherche Physique Théorique et Modélisation, Université de Cergy, 11 mai 2000; Laboratoire d'Etude des Microstructures, ONERA, Chatillon, 2 mai 2000; Section de Recherches de Métallurgie Physique, CEA Saclay, 2 mars 2000; Centre de Mathématiques Appliquées, Ecole Polytechniqe, 24 février 2000.

 **Modélisation de microstructures de solidification par la méthode du champ de phase**: Laboratoire de Modelisation en Mécanique, Université Pierre et Marie Curie, Paris, 13 décembre 2002; Institut Non Linéaire de Nice (INLN), Sophia Antipolis, 6 décembre 2002.

 **Quelques applications de la méthode 'phase-field': Colonies eutectiques, bandes péritectiques et spirales de croissance**: Laboratoire de Physique de la Matière Condensée, Ecole Polytechnique, Palaiseau, 3 septembre 1998; Groupe de Physique des Solides, Universités Paris VI et VII, Paris, 4 septembre 1998.

## Ecoles d'été

 Ecole thématique "Les changements de phase solide-liquide-vapeur : fondements et applications", Les Embiez, 25-31 octobre 2009: "Modélisation des interfaces solide-liquide à l'échelle mésoscopique: la méthode du champ de phase".

 Ecole thématique "Solidification des alliages métalliques", Saint-Pierre d'Oléron, 22-27 juin 2014: "Méthodes de champ de phase".

## Réunions, workshops, etc.

 Colloque du GdR "Microgravité Fondamentale et Appliquée", Porticiio, 9-12 octobre 2012: "Simulations par champ de phase de la formation de branches dendritiques secondaires en trois dimensions".

 Journées Expériences in situ et simulations, GdR SAM, Faculté de St. Jérôme, Marseille, 11-12 juin 2012: "La méthode du champ de phase - possibilités et limitations".

 Colloque du GdR "Microgravité Fondamentale et Appliquée", Fréjus, 6-9 novembre 2011: "Fronts de solidification cellulaires: Simulation par champ de phase et analyse géométrique".

 Journée "Matière Complexe" du RTRA "Triangle de la Physique", Orsay, 24 septembre 2009: "Irrégularité, morphologies et phénomènes de transport".

 Colloque du GDR "Micropesanteur Fondamentale et Appliquée", Carry Le Rouet, 17-29 octobre 2005: "Stabilité morphologique de microstructures eutectiques: Simulations par la méthode du champ de phase".

 Journée "Electrochimie et fractales", Ecole Normale Supérieure de Cachan, 28 janvier 2005: "Modélisation de la croissance électrochimique".

 Journée thématique du GDR 2258 "Phénomènes de Transport et Transitions de Phase en Micropensanteur" sur l'influence des champs externes sur la ségrégation et la structuration en solidification: expériences et simulations, Laboratoire EPM, Grenoble, 21 mars 2003: "Simulations de la solidification sans et avec écoulement par la méthode du champ de phase".

 Journées de travail sur la modélisation de problèmes à interfaces avec couplages, PPF "Mécanique numérique hautes performances", Laboratoire de Mécanique et d'Acoustique, ESM2 - Université de la Méditerranée, Marseille, 19-20 novembre 2002: "La méthode du champ de phase".

## Cours

 **Structures fractales et phénomènes chaotiques**, cours électif (18 heures) à SUPELEC, Gif-sur-Yvette.

 Intervention dans un séminaire XCollège (Ecole Polytechnique), **Processus irréversibles dans les systèmes électrochimiques**.

# http://pmc.polytechnique.fr/pagesperso/mp/pictures/logo_small.gifPhase-field models for the evolution of complex structures

Summer school

Peyresq (France), 23 september to 4 october, 2013

## Financial support

Main sponsor:

Other sponsors:



 ****

## Topic

The phase-field method is a compact and elegant tool for the numerical modelling of problems that involve moving boundaries. In recent years, it has been applied to a large variety of subjects, including microstructure evolution in materials (solidification, precipitation, grain growth), multi-phase flows (fingering, droplet coalescence), fracture, soft matter and biophysics (membrane dynamics, vesicles). The key idea of this method is to represent the moving surfaces by an auxiliary field, the phase field, which exhibits a steep but smooth (diffuse) interface. The evolution of this field is governed by equations that can be obtained from the fundamental principles of out-of-equilibrium thermodynamics.

## Goal and scope

This school is mainly intended for Ph.D. students and young researchers that already have a first experience with the phase-field method (on any topic) and who wish to deepen their understanding of the fundamentals, and/or wish to see applications in other domains to broaden their knowledge about the possibilities of the method. Complete beginners in phase field can be accepted if they have a strong background in at least one of the following fields: statistical physics, materials science, thermodynamics and phase transitions. The school will last two weeks. In the first week, the focus will be on the fundamentals; in the second week, various applications will be presented. Practical sessions on several numerical examples of model problems will also be offered. Participants will be given an opportunity to present their work by a poster. The lecturers will be available for discussions with the participants during the entire session.

## Lecturers and program

The lecturers come from various european countries and have all contributed to new developments on phase-field models and their applications in recent years:

* Benoît Appolaire, ONERA, Châtillon, France
* Janin Eiken, Access, Aachen, Germany
* [Yann Le Bouar](http://zig.onera.fr/~lebouar/index.html), CNRS/ONERA, Châtillon, France
* [Hervé Henry](http://pmc.polytechnique.fr/~hh/), Ecole Polytechnique, Palaiseau, France
* [Mathis Plapp](http://pmc.polytechnique.fr/mp), Ecole Polytechnique, Palaiseau, France
* Tamás Pusztai, Wigner RCP, Budapest, Hungary
* [Robert Spatschek](http://www.mpie.de/index.php?id=cm-members&name=spatschek&cHash=60bfd410eb), Max-Planck-Institute for Iron Research, Düsseldorf, Germany
* [Axel Voigt](http://tu-dresden.de/die_tu_dresden/fakultaeten/fakultaet_mathematik_und_naturwissenschaften/fachrichtung_mathematik/institute/wir/staff/Professoren/voigt_html), Technical University Dresden, Germany

The [program](http://pmc.polytechnique.fr/pagesperso/mp/PF/Program_phiECS.pdf) of the school.

## Practical information



* Location: Peyresq is a village situated in the french Alps, about 100 km north of Nice. See [here](http://www.peiresc.org/) for detailed information (in french and english).
* Transportation: Nice has an international airport, and can also be reached by train. Transfer to Peyresq will be organized on the afternoon of the starting day.
* Fees:
	+ 300 Euros for Ph.D. students,
	+ 500 Euros for postdocs,
	+ 700 Euros for permanent researchers.

This includes meals and lodging in the historic village of Peyresq (mostly in double rooms or small apartments).
**Note:** since this school is sponsored by the CNRS (continuing education), participation is free for CNRS personnel.

## Application and registration

The application for the school is now **closed**. However, for replacement of cancelled participants, the [application form](http://pmc.polytechnique.fr/pagesperso/mp/PF/ApplicationForm.doc) (format: MS Word) is still available. Please fill it in and send it back by email to the address phasefield2013@onera.fr .

The registration is a two-step process:

* Pre-registration: at the URL <http://dr05.azur-colloque.cnrs.fr/>. The name of the school is PHIECS. Select "Preregistration". Note that in the english version of the website, the "tarification" scroll bar is not so clear: "Student/University" stands for "Academic staff/Researcher with a permanent position"; "Student" stands for "PhD student";"PostDoc" stands for "PostDoc".
* Then you will have to wait until we have time to check if everything is correct, and you will get notified that you can register.
* Registration: Payment needs to be made by **credit card**. Only the french labs related to the CNRS and that have to use the "bon de commande" procedure will select the "bank transfer" option.

Further information and inquiries: phasefield2013@onera.fr

Last updated: 23/07/2013