

Workshop “Use of Magnetic Fields in Crystal Growth”

December 5 and 6, 2003, 9⁰⁰-16⁰⁰
Institute of Physics and Department of Physics of Latvia University
Zellu Str. 8, LV-1002, Riga, Latvia, Room 233

Tentative program

December 5, 2003. 9⁰⁰-16⁰⁰

1. Andrejs Cebers: Department of Physics, University of Latvia, Riga, Latvia. **TOPICAL LECTURE: Magnetic fields in nanotechnology.**
2. Bernard Nacke: Institute for Electrothermal Processes, University of Hanover, Germany. **Use of electrothermal methods in material processing - the title still will be precised.**
3. Peter Dold¹, A. Cröll², F. Szofran³: ¹Kristallographisches Institut, University of Freiburg, Germany; ²TU-Freiberg, Germany; ³SD46, NASA-MSFC, Huntsville, AL 35812, USA. **Thermoelectromagnetic convection in semiconductor crystal growth.**
4. Yves Delannoy: EPM-MADYLAM, France. **The effect of the electromagnetic stirring on the concentration unbalance and shape of the crystallization front for the In-Ga-As Bridgman process - numerical modeling.**
5. Yves Delannoy: EPM-MADYLAM, France. **The mass transfer results given by numerical model on floating zone growth with dissolution.**
6. Ulrike Wunderwald: TU Bergakademie Freiberg, Institut für NE-metallurgie und Reinststoffe, Germany. **Vertical Gradient Freeze crystal growth with a rotating magnetic field.**
7. Ronny Lantzsch: TU Bergakademie Freiberg, Institut für NE-metallurgie und Reinststoffe, Germany. **Design of a traveling magnetic field for Vertical Gradient Freeze crystal growth.**
8. Kaspars Dadzis¹, A. Muiznieks^{1,2}: ¹Department of Physics, University of Latvia, Riga, Latvia; ²Institute for Electrothermal Processes, University of Hanover, Germany. **Numerical modeling of hydrodynamics and mass transport in Vertical Gradient Freeze Crystal Growth with non-stationary magnetic fields.**
9. Armands Krauze¹, A. Muiznieks^{1,2}: ¹Institute for Electrothermal Processes, University of Hanover, Germany; ²Department of Physics, University of Latvia, Riga, Latvia. **2D Modeling of turbulent melt flow in CZ crystal growth process under influence of several axially symmetric dynamic magnetic fields.**
10. Gundars Ratnieks, Th. Wetzel: Wacker Siltronic AG, Burghausen, Germany. **Numerical study of phase boundaries for industrial FZ growth of large silicon crystals.**
11. Andis Rudevics¹, A. Muiznieks^{1,2}: ¹Department of Physics, University of Latvia, Riga, Latvia; ²Institute for Electrothermal Processes, University of Hanover, Germany. **Transient modeling of the FZ process for large silicon single crystal growth.**
12. Kaspars Lacis¹, A. Muiznieks^{1,2}: ¹Department of Physics, University of Latvia, Riga, Latvia; ²Institute for Electrothermal Processes, University of Hanover, Germany. **Modeling of the open melting front in HF EM field for FZ silicon single crystal growth process.**

December 6, 2003. 9⁰⁰-16⁰⁰

13. Ivars Driķis: Department of Physics, University of Latvia, Riga, Latvia. **INVITED LECTURE. Application of photonic crystals based on semiconductor materials for integrated electronic-optic micro systems.**
14. Vladimir Galindo, A.Cramer, G.Gerbeth: Forschungszentrum-Rossendorf, Germany. **Status of MULTIMAG and velocity measuring techniques at FZR.**
15. Institute for crystal Growth, Berlin, Germany. **(The author and the title will be precised).**
16. Armands Krauze¹, A. Muiznieks^{1,2}: ¹Institute for Electrothermal Processes, University of Hanover, Germany; ²Department of Physics, University of Latvia, Riga, Latvia. **3D modeling of turbulent melt flow in CZ crystal growth process under influence of horizontal static magnetic field.**
17. Sandris Lacis¹, A. Muiznieks^{1,2}: ¹Department of Physics, University of Latvia, Riga, Latvia; ²Institute for Electrothermal Processes, University of Hanover, Germany. **3D modeling of the stress field in the crystal during CZ process by considering the slip directions.**
18. Andis Rudevics¹, A. Muiznieks^{1,2}: ¹Department of Physics, University of Latvia, Riga, Latvia; ²Institute for Electrothermal Processes, University of Hanover, Germany. **Analysis of the influence of the melt motion on the shape of molten zone in FZ process for large silicon single crystal growth.**
19. Martins Mihailovs¹, A. Muiznieks^{1,2}: ¹Department of Physics, University of Latvia, Riga, Latvia; ²Institute for Electrothermal Processes, University of Hanover, Germany. **Local analysis of crystallization dynamics in the vicinity of triple point for FZ process.**
20. Janis Virbulis¹, A. Muiznieks²: ¹PAIC Ltd, Riga, Latvia; ²Department of Physics, University of Latvia, Riga, Latvia. **Electromagnetic, hydrodynamic and thermal analysis of wire melting and evaporation process.**
21. Svetlana Aleksandrova, S. Molokov: Coventry University, School of Mathematical and Information Sciences, UK. **Classification of buoyant convective flows in cylindrical cavities in a strong, uniform, axial magnetic field.**
22. Andris Bojarevics: Institute of Physics, University of Latvia, Salaspils, Latvia. **Semi-levitation of the molten sodium in HF EM field, velocity measurements in the melt.**
23. Ilmars Grants¹, G. Gerbeth²: ¹Institute of Physics, University of Latvia, Salaspils, Latvia; ²Forschungszentrum Rossendorf, Germany. **Rayleigh-Benard instability in a cylinder under influence of rotating and steady magnetic fields.**
24. Alexander Pedchenko, I. Grants: Institute of Physics, University of Latvia, Salaspils, Latvia. **Experiments on magnetic control of turbulence.**
25. A. Muiznieks^{1,2}, Kaspars Dadzis¹: ¹Department of Physics, University of Latvia, Riga, Latvia; ²Institute for Electrothermal Processes, University of Hanover, Germany. **Simplified model for Monte Carlo simulations of point defects during industrial silicon crystal growth.**
26. **POSTER** - J. Priede, G. Gerbeth, R. Hermann, O. Filip, G. Behr: Forschungszentrum-Rossendorf, Germany. **Two-phase induction melting with tailored flow control.**