

Programme Summary Sheet

Tuesday 8 th July		Wednesday 9 th July			Thursday 10 th July			Friday 11 th July		
08:30	Registration	PLENARY SESSION II (A.L. Greer) J.H. Perepezko M. Rappaz D.M. Herlach H. Yasuda			PLENARY SESSION III (M. Rappaz) A. Karma C. Beckermann L. Ratke Ch.-A. Gandin			PLENARY SESSION IV (W. Kurz) J. Campbell D.H. StJohn R.P. Sear A. Ludwig		
10:30		Welcome and Introduction			Break			Break		
11:00	PLENARY SESSION I (L. Ratke) W. Kurz A.L. Greer L. Gránásy Z. Fan	A3	B3	C3	A5	B5	C5	A8	B8	C8
13:00		Nucleation & Grain Refinement III	Defect Formation I	Intermetallic Formation	Dendritic Growth II	Solidification Under Forced Convection I	Advanced Solidification Processing II	Microstructural Formation	Solidification Under Forced Convection IV	Single Crystal Solidification
		<i>J. Perepezko</i>	<i>A. Ludwig</i>	<i>C. Gourlay</i>	<i>G.J. Schmitz</i>	<i>Y. Fautrelle</i>	<i>W. Griffiths</i>	<i>D.J. Browne</i>	<i>D.G. Eskin</i>	<i>H. Dong</i>
	<i>M.-X. Zhang</i>	<i>P.D. Lee</i>	<i>S. Steinbach</i>	<i>S. Akamatsu</i>	<i>N. Bergeon</i>	<i>M. Rettenmayr</i>	<i>H. Yasuda</i>	<i>Y. Zuo</i>		
	Lunch	Lunch			Lunch			Lunch		
14:00	A1	B1	C1	A4	B4	C4	A6	B6	C6	Conference End
15:40	Nucleation & Grain Refinement I	Eutectic / Peritectic / Monot. Solid. I	Rapid Solidification I	Dendritic Growth I	Defect Formation II	Advanced Solidification Processing I	Dendritic Growth III	Solidification Under Forced Convection II	Advanced Solidification Processing III	
	<i>D.H. StJohn</i>	<i>S. Steinbach</i>	<i>D.M. Herlach</i>	<i>L. Gránásy</i>	<i>P.D. Lee</i>	<i>J. Campbell</i>	<i>P. Voorhees</i>	<i>P.S. Grant</i>	<i>C.-A. Gandin</i>	
	<i>P. Schumacher</i>	<i>M. Plapp</i>	<i>A.M. Mullis</i>	<i>P.W. Voorhees</i>		<i>H.B. Dong</i>	<i>B. Billia</i>	<i>D.G. Eskin</i>	<i>G.J. Schmitz</i>	
	Break	Break			Break					
16:10	A2	B2	C2	Poster Session			A7	B7	C7	Key: <i>First name in italic designates the session chairman, the second name the invited speaker of the session</i>
17:50	Nucleation & Grain Refinement II	Eutectic / Peritectic / Monot. Solid. II	Rapid Solidification II				Dendritic Growth IV	Solidification Under Forced Convection III	Advanced Solidification Processing IV	
	<i>P. Schumacher</i>	<i>I.C. Stone</i>	<i>A.M. Mullis</i>				<i>S. Lu</i>	<i>J. Mi</i>		
	<i>C.M. Gourlay</i>	<i>J. Lacaze</i>	<i>T. Volkmann</i>		<i>Y. Fautrelle</i>					
18:30	Conference BBQ	John Hunt Medal Presentation and Memorial Lecture			Conference Dinner and Poster Presentation					

TUESDAY 8TH JULY

Plenary Session I

Chairman: Professor Lorenz Ratke

- 11:00** Paths to Solidification Science
W. Kurz (EPFL, Switzerland)
- 11:30** Principles of Alloy Grain Refinement in Solidification Processing
A.L. Greer (University of Cambridge, UK)
- 12:00** Recent Developments in Modelling Heterogeneous Crystal Nucleation by Dynamical Density Functional Theory
L.E. Gránásy (Wigner Research Centre for Physics, Hungary), F. Podmaniczky, G.I. Tóth, G. Tegze and T. Pusztai
- 12:30** Recent Advances in the Understanding of Heterogeneous Nucleation
Z. Fan (BCAST, Brunel University, UK), Y. Wang, H. Men, G.S. Peng, W.C. Yang and L. Zhou

LUNCH

Room A - Nucleation and Grain Refinement I

Chairman: Professor David StJohn

- 14:00** **Invited Lecture:** Nucleation Kinetics of Entrained Eutectic Si in Al-Si Alloys
J.H. Li, M. Albu, T.H. Ludwig, F. Hofer, L. Arnberg and P. Schumacher (Austrian Foundry Research Institute, Austria)
- 14:20** Mechanism of Heterogeneous Nucleation of α -Al on TiB₂ Inoculants
Y. Wang (BCAST, Brunel University, UK), Z. Fan, X. Zhou, G.E. Thompson and T. Pennycook
- 14:40** The Interdependence Model of Grain Refinement: On the Effect of the Melt Thermal Gradient on the Size of the Nucleation-Free Zone
A. Prasad (University of Queensland, Australia)
- 15:00** Grain Refinement of Pure (DHP) Copper by Inoculation and Solute Element Additions
M.J. Balart (BCAST, Brunel University, UK), J.B. Patel and Z. Fan
- 15:20** Pre-nucleation in liquid aluminium induced by substrates with misfit
H. Men (BCAST, Brunel University, UK) and Z. Fan

Room B - Eutectic / Peritectic / Monotectic Solidification I

Chairman: Dr Sonja Steinbach

- Invited Lecture:** Phase-field Simulations of Eutectic Solidification: Pattern Dynamics in Three Dimensions
M. Plapp (École Polytechnique, CNRS, France), A. Parisi, A. Choudhury and S. Ghosh
- Microstructures in a Ternary Eutectic Alloy
A. Dennstedt (Institut für Materialphysik im Weltraum, DLR, Germany), A. Choudhury, L. Ratke and B. Nestler
- Dynamic Stability of Three-Phase Patterns During Thin-Sample Directional Solidification of a Ternary Eutectic Alloy
S. Bottin-Rousseau (Sorbonne Universités/UPMC, France), S. Yüçetürk, M. Serefoglu, G. Faivre and S. Akamatsu
- The Influence of Ternary Alloying Elements on the Solidification and Microstructure of Al-Si Alloys
A. Darlapudi (University of Queensland, Australia), S.D. McDonald and D.H. StJohn
- Modelling Effects of Sr in Phase-Field Simulations of Al-Si Eutectics
J. Eiken (Access e.V., Germany) and M. Apel

Room C - Rapid Solidification I

Chairman: Professor Dieter Herlach

- Invited Lecture:** The Origins of Spontaneous Grain Refinement in Undercooled Melts
A.M. Mullis (University of Leeds, UK), E.G. Castle and R.F. Cochrane
- Dendritic Growth of Tenfold Twins from an Undercooled Melt of Glass-Forming NiZr
R. Kobold (Institut für Materialphysik im Weltraum, DLR, Germany), W. Hornfeck, M. Kolbe and D.M. Herlach
- Pattern Formation of Crystal Growth from Near-Equilibrium to Far-From-Equilibrium
J. Wang (Northwestern Polytechnical University, P.R. China), S. Tang and J. Li
- Rapid Solidified Aluminium Alloys for Screw Extrusion
K.G. Skorpén (Norwegian University of Science and Technology, Norway), T. Jacobsen Stedje, O. Reiso and H.J. Roven
- Dendrite Growth Morphologies in Rapidly Solidified Al-4.5wt.%Cu Droplets
M. Bedel (Aix-Marseille Univ & CNRS, France), G. Reinhart, A.-A. Bogno, H. Nguyen-Thi, E. Boller, S. Jacomet, Ch.-A. Gandin and H. Henein

BREAK

Room A - Nucleation and Grain Refinement II**Chairman: Professor Peter Schumacher**

16:10 **Invited Lecture:** Competition between Stable and Metastable Intermetallics During the Solidification of Sn-rich Sn-Ni Alloys
S.A. Belyakov and C.M. Gourlay (Imperial College London, UK)

16:30 Design of a New Grain Refiner for Mg Alloys using E2EM
Y. Ali (University of Queensland, Australia), D. Qiu and M.-X. Zhang

16:50 Heterogeneous Nucleation of α -Al on Fe-rich Intermetallic Investigated using 3D SEM Ultramicrotomy and HRTEM
W.C. Yang (BCAST, Brunel University, UK), S. Ji, X. Zhou, I.C. Stone, G.M. Scamans, G.E. Thompson and Z. Fan

17:10 The Critical Effect of Fe on the Grain Refinement of Aluminium
Y. Zhang (Shanghai Jiao Tong University, China), N. Ma and H. Wang

17:30 A Novel Nb-based Grain Refiner for High Performance Al-Si Cast Alloys
L. Bolzoni (BCAST, Brunel University, UK) and N. Hari Babu

Room B - Eutectic / Peritectic / Monotectic Solidification II**Chairman: Dr Ian Stone**

Invited Lecture: Misorientations in Spheroidal Graphite: Some New Insights About Spheroidal Graphite Growth in Cast Irons.
J. Lacaze (Université de Toulouse, France), K. Theuwissen, L. Laffont and M. Véron

Effect of Ca Addition on Modification of Primary Mg_2Si in Mg-Si Hypereutectic Alloys
M.E. Moussa (Central Metallurgical Research and Development Institute (CMRDI), Egypt), M.A. Way and A.M. El-Sheikh

In Situ Synchrotron Study of Liquid Phase Separation Process in Al-Bi Immiscible Alloys by Radiography and Small Angle X-ray Scattering
W. Lu (Shanghai Jiao Tong University, China), S. Zhang and J. Li

Liquid-Liquid Demixing of Co-Cu Alloys on MAPHEUS Rocket Flight
M. Kolbe (Institut für Materialphysik im Weltraum, DLR, Germany), F. Goldschmidt, D. Menke, C. Neumann, J. Drescher, F. Kargl and A. Meyer

Effect of P and Ca on the Al-Si eutectic
T.H. Ludwig (Hydro Aluminium, Norway), P.L. Schaffer and L. Arnberg

Room C - Rapid Solidification II**Chairman: Professor Andrew Mullis**

Invited Lecture: Metastable Phase Formation in Undercooled Fe-Co Alloy Melts
T. Volkman (Institut für Materialphysik im Weltraum, DLR, Germany), C. Karrasch and W. Löser

Dendrite Growth Kinetics in Undercooled Melts of D2 Tool Steels
J. Valloton (University of Alberta, Canada), D.M. Herlach, and H. Henein

Solidification of Single Droplets under Combined Cooling Conditions
N. Ellendt (Foundation Institute for Materials Science Process & Chemical Engineering, Germany), N. Ciftci, V. Uhlenwinkel and L. Mädler

Rapidly Solidified Ag-Cu Eutectic
A.M. Mullis (University of Leeds, UK), Y. Yu and R.F. Cochrane

Phase Field Crystal Modelling and Experimental Study of the Order-to-Disordered Atomistic Structure Transition of Metallic Glass Composites
W. Zhang (University of Hull, UK) and J. Mi

CONFERENCE BBQ

WEDNESDAY 9TH JULY

Plenary Session II

Chairman: Professor Lindsay Greer

- 08:30** Analysis of Melt Undercooling and Crystallization Kinetics
J.H. Perepezko (University of Wisconsin-Madison, USA)
- 09:00** Enhancement of Bulk Nucleation in FCC-Type Liquid Metals by Icosahedral Quasicrystals Formation
M. Rappaz (Ecole Polytechnique Fédérale de Lausanne, Switzerland) and G. Kurtuldu
- 09:30** Crystal Nucleation and Dendrite Growth in Undercooled Melts
D.M. Herlach (Institut für Materialphysik im Weltraum, DLR, Germany)
- 10:00** Applications of in-situ imaging to alloy solidification
H. Yasuda (Kyoto University, Japan)

BREAK

Room A - Nucleation and Grain Refinement III

Chairman: Professor John Perepezko

- 11:00** **Invited Lecture:** Research Progress in Grain Refinement of Cast Metals
M.-X. Zhang (University of Queensland, Australia) and D. Qiu
- 11:20** Competitive Nucleation Between MgO and Zr Particles in Mg-Zr Alloys
G.S. Peng (BCAST, Brunel University, UK), Y. Wang, W.C. Yang and Z. Fan
- 11:40** The Interface of Heterogeneous Nucleation on Single Crystal Substrates
L. Yang, M. Xia (Shanghai Jiao Tong University, China), S. Zhang and J. Li
- 12:00** Heterogeneous Nucleation of Cu₆Sn₅ in Pb-free Solders
J. Xian (Imperial College London, UK), S.A. Belyakov, T.B. Britton and C.M. Gourlay
- 12:20** Mechanisms of Heterogeneous Nucleation on Substrates with Large Misfit
Y. Wang (BCAST, Brunel University, UK), H. Men, W.C. Yang and Z. Fan

Room B - Defect Formation I

Chairman: Professor Andreas Ludwig

- Invited Lecture:** In Situ Synchrotron X-ray Tomographic Quantification of the Semi-solid Deformation of an Equiaxed Dendritic Al15Cu
B. Cai, S. Karagadde, L. Yuan, T.J. Marrow, T. Connolly and P.D. Lee (University of Manchester, UK)
- Multi-Scale Simulation of Semisolid Deformation in Aluminum 6061 Fusion Weldings
H.R. Zareie Rajani and A.B. Phillion (University of British Columbia, Canada)
- In Situ Tomographic Analysis of Trans-granular Fracture of Semi-Solid Al-Cu Globular Microstructure under Indentation
S. Karagadde, B. Cai, C. Puncreobutr (University of Manchester, UK), M.A. Azeem, K.M. Kareh, J.L. Fife and P.D. Lee
- 3D Simulation of Segregated Channels during Directional Solidification of Indium-Gallium Alloys
A. Saad (MINES ParisTech CEMEF UMR CNRS, France), Ch.-A. Gandin and M. Bellet
- Direct Observation of High-solid Fraction Deformation in Carbon Steel
T. Nagira (Osaka University, Japan), S. Morita, H. Yokota, H. Yasuda, C.M. Gourlay, M. Yoshiya, A. Sugiyama and K. Uesugi

Room C - Intermetallic Formation

Chairman: Dr Christopher Gourlay

- Invited Lecture:** Formation of Intermetallic Phases in AlSi7Fe1 Alloy Processed under Microgravity and Forced Fluid Flow Conditions
S. Steinbach (Institut für Materialphysik im Weltraum, Germany), L. Ratke and G. Zimmermann
- On the Fe Intermetallic Formation in DC Casting of 6063 Al Alloy: Influence of Intensive Melt Shearing
S. Kumar (University of Oxford, UK), S. Jones, H.-T. Li, J.B. Patel, Z. Fan, P.S. Grant and K.A.Q. O'Reilly
- Study on Heterogeneous Nucleation and Solidification Characteristics in Al-Mg-Si-Fe-Mn Alloys
Z.P. Que (BCAST, Brunel University, UK), Y.P. Zhou, Y. Wang and Z. Fan
- Impurity effects on the nucleation and growth of primary Al₃(Sc,Zr) phase in Al based Alloys
J.H. Li (University of Leoben, Austria), C. Promer, A. Jahn, B. Oberdorfer, S. Wurster and P. Schumacher
- 3D Characterization by Tomography Investigation of Beta Phase Precipitation of Al6.5Si1Fe Alloys
D. Ferdian (Université de Toulouse, France), L. Salvo, J. Lacaze, C. Tenailleau, B. Duployer and B. Malard

12:40 Validated Thermodynamic Prediction of AlP and Eutectic (Si) Solidification Sequence in Al-Si Cast Alloys
S.-M. Liang (Clausthal University of Technology, Germany) and R. Schmid-Fetzer

Double Oxide Film Defects and the Formation of Porosity in Al Alloys
W.D. Griffiths (University of Birmingham, UK), A.J. Gerrard and Y. Yue

The Influence of Cooling Rate and Fe/Cr Content on the Evolution of Fe-Rich Compounds in a Secondary Al-Si-Cu Diecasting Alloy
A. Fabrizi (University of Padua, Italy) and G. Timelli

LUNCH

Room A - Dendritic Growth I Chairman: Professor László Gránásy

14:00 **Invited Lecture:** Dendritic Growth in 4D
 J.W. Gibbs, A. Mohan, A. Shahani, B. Gulsoy, C. Bouman, X. Xiao and
P.W. Voorhees (Northwestern University, USA)

14:20 3D modeling of a Thermal Dendrite using the Phase-Field Method with Finite Element Automatic Adaptive Meshing
C. Sarkis (MINES ParisTech, France), L. Silva, Ch.-A. Gandin and M. Plapp

14:40 The Effects of Melt Perturbation and Interface Anisotropy on the Tip-splitting Instability of Cell/Dendrite: A Phase-Field Study
Y. Chen (Institute of Metal Research, China), D.Z. Li, B. Billia and H. Nguyen-Thi

15:00 Experimental Study and Phase-field Modelling of Directionally Solidified Zn-Al Dendrites
A. Durussel (École Polytechnique Fédérale de Lausanne, Switzerland), J. Dantzig and M. Rappaz

15:20 Quantitative Comparison of Dendritic Solidification Simulated by a CAFE and a Phase-Field Model
 T. Carozzani, G. Guillemot, Ch.-A. Gandin, H. Digonnet, J. Eiken (Access e.v., Aachen, Germany) and M. Apel

Room B - Defect Formation II Chairman: Professor Peter Lee

In Situ X-ray Observations of Gas Porosity Interactions with Dendritic Microstructures during Solidification of Al-based Alloys
A.G. Murphy (University College Dublin, Ireland), D.J. Browne, Y.Houltz and R.H. Mathiesen

Hot Tearing Susceptibility of Mg-Ca Binary Alloys
J.F. Song (Institute of Materials Research, Germany), Z. Wang, Y.D. Huang, K.U. Kainer and N. Hort

Effect of the Dendritic Morphology on Hot Tearing of Carbon Steels
M.-R. Ridolfi (Centro Sviluppo Materiali S.p.A., Italy)

Simple Metrics for Verification and Validation of Macrosegregation Model Predictions
I. Vusanovic (University of Montenegro, Montenegro) and V.R. Voller

Three Dimensional Simulation of Macrosegregation in Steel Billets by a Meshless Method
 R. Vertnik and B. Šarler (University of Nova Gorica, Slovenia)

Room C - Advanced Solidification Processing I Chairman: Professor John Campbell

Invited Lecture: An Integrated Framework for Multi-Scale Multi-Physics Modelling of Fusion Welding
H.B. Dong (University of Leicester, UK)

A Meshless Approach to Thermomechanics of DC Casting of Aluminium Billets
B. Mavrič (Institute of Metals and Technology, Slovenia) and B. Šarler

Study on Rheo-Diecasting Process of 7075R Alloys by a Modified A-EMS Melt Homogenized Treatment
Z. Gao (General Research Institute for Non-Ferrous Metals, China), J. Xu, Z. Zhang, G. Liu and M. Tang

Life Cycle Analysis and Potential Energy Saving in the Foundry Industry using the Novel CRIMSON Process
M.R. Jolly (Cranfield University, UK)

Surface Formation in Direct Chill (DC) Casting of 6082 Aluminium Alloys
N. Bayat (Mid Sweden University, Sweden) and T. Carlberg

BREAK

POSTER SESSION

JOHN HUNT MEDAL PRESENTATION, DINNER AND JOHN HUNT MEMORIAL LECTURE

THURSDAY 10TH JULY

Plenary Session III

Chairman: Professor Michel Rappaz

- 08:30** Multiscale Modelling of Dendritic Microstructures: Bridging the Dendrite Tip and Grain Scales
A. Karma (Northeastern University, USA), Y. Song and D. Tourret
- 09:00** Coarsening-driven Dendrite Fragmentation in Directional Solidification
H. Neumann-Heyme and C. Beckermann (University of Iowa, USA)
- 09:30** Phase Separation in Liquid Immiscible Alloys: From Fundamentals to Applications
L. Ratke (Institute of Materials Research, DLR, Germany)
- 10:00** 3D Multiscale Modelling of Solidification Structures
Ch.-A. Gandin (MINES ParisTech, France), A. Saad, S. Chen, G. Guillemot and M. Bellet

BREAK

Room A - Dendritic Growth II

Chairman: Dr Georg J. Schmitz

- 11:00** **Invited Lecture:** In Situ Micromanipulation of Solidification Patterns
S. Akamatsu (INSP, Sorbonne Universités/UPMC, France), S. Bottin-Rousseau, A. Karma and W. Losert
- 11:20** Bent Dendrite Growth in Undercooled Fe-B Alloy Melts
C. Karrasch (Institut für Materialphysik im Weltraum, DLR, Germany), T. Volkman, M. Kolbe, J. Valloton and D.M. Herlach
- 11:40** Dynamics of Dendrite Deformation during Solidification of Al-7wt.%Si Alloys
G. Reinhart (Aix-Marseille Université & CNRS, Campus Saint-Jerome, France), H. Nguyen-Thi, N. Mangelicnk-Noël, J. Baruchel and B. Billia
- 12:00** Experimental Study and Modelling of Percolation of Globular-Equiaxed Grains in Inoculated Al-Cu Alloys
Ch. Mondoux (École Polytechnique Fédérale de Lausanne, Switzerland), M. Rappaz and J. Fife
- 12:20** Analytical Multicomponent Microsegregation Model for Equiaxed Globular Growth with Diffusion Interaction Between Species
G. Guillemot (MINES ParisTech – CEMEF, France) and Ch.-A. Gandin
- 12:40** A New Concept for Growth Restriction during Alloy Solidification
F. Gao, L. Zhou, S.Z. Lu (BCAST, Brunel University, UK) and Z. Fan

Room B - Solidification Under External Fields I

Chairman: Professor Yves Fautrelle

- Invited Lecture:** Influence of Convection During Directional Solidification of 3D-Alloy: Comparison of 1g and μ g Experiments Performed in the DECLIC-DSI
N. Bergeon (Aix-Marseille Université & CNRS UMR 7334, France), F.L. Mota, L. Chen, D. Tourret, J.-M. Debierre, R. Guerin, B. Billia, A. Karma and R. Trivedi
- Morphological Evolution and Rheological Behavior in the Semisolid Melt Under Stirring
X. Lin (Northwestern Polytechnical University, P.R. China), H.Y. Wang, L.L. Wang, M. Wang and W.D. Huang
- Liquid Metal Engineering via Application of Intensive Melt Shearing
J.B. Patel (BCAST, Brunel University, UK), Y. Wang, B. Jiang and Z. Fan
- Experimental Analysis of the Influence of Natural/Forced Convection on the Solidification of Sn-Pb Alloys
K. Zaidat (Université Grenoble Alpes, France), L. Hachani and Y. Fautrelle
- Grain Refinement in Al-Si Alloys Caused by Electric Current Pulses and the Role of Melt Convection
D. Rübiger (Helmholtz-Zentrum Dresden-Rossendorf, Germany), Y. Zhang, S. Franke and S. Eckert
- In-Situ Studies of the Dynamics of Solidification at Nanoscale
J. Mi (University of Hull, UK)

Room C - Advanced Solidification Processing II

Chairman: Dr William Griffiths

- Invited Lecture:** Growth of Oriented Thermoelectric Bi-In-Te alloys by Seeding Zone Melting for the Enhancement of Chemical Homogeneity
D.M. Liu, H. Engelhardt, X.Z. Li, A. Löffler and M. Rettenmayr (Friedrich Schiller University, Germany)
- Solidification Mechanism in Melt Conditioned Direct Chill Casting (MC-DC) Process
H.-T. Li (BCAST, Brunel University, UK), J.B. Patel, M. Xia and Z. Fan
- Thermal Contact Resistance Formation in Net Shape Casting of Silicon Sheets by the RGS (Ribbon Growth on Substrate) Process
P.Y. Pichon (Institut für Materialphysik im Weltraum, DLR, Germany; RGS Development B.V., The Netherlands), D. Simons, D.M. Herlach and A. Schonecker
- Microstructural Formation in the Melt Conditioned Twin-Roll Casting (MC-TRC) Process
S. Das, N. Barekar (BCAST, Brunel University, UK) and Z. Fan
- A Multi-mini-pot Pouring Process of Heavy Ingots for Power Plant Forgings Based on Step Solidification
J. Li (Shanghai Jiaotong University, China), B. Wang and J. Li
- Effect of Ce Melt Treatment on Solidification Path of ZA8 Alloy
K.N. Prabhu (NITK Surathkal, India), R. Sudheer and V. Vijeesh

LUNCH

Room A - Dendritic Growth III
Chairman: Professor Peter Voorhees

Room B - Solidification Under External Fields II
Chairman: Professor Patrick Grant

Room C - Advanced Solidification Processing III
Chairman: Dr Charles-André Gandin

14:00	Invited Lecture: Growth Dynamics and Solid Fraction of Dendritic Equiaxed Grains in Cooling-down of Al – 10 wt% Cu Alloy: In Situ X-ray Characterisation <u>B. Billia</u> (CNRS & Aix-Marseille Université, France), A. Bogno, H. Nguyen-Thi, G. Reinhart and J. Baruchel	Invited Lecture: Application of Ultrasonic Cavitation in Melt Processing: Myths and Reality <u>D.G. Eskin</u> (BCAST, Brunel University, UK)	Invited Lecture: On the Role of Solidification Modelling in Integrated Computational Materials Engineering “ICME” <u>G.J. Schmitz</u> (ACCESS e.V., Germany), B. Böttger and M. Apel
14:20	Modeling Al-4wt.%Cu As-Cast Structure Using Equiaxed Morphological Parameters Deduced from In-Situ Synchrotron X-ray Radiography M. Ahmadein, <u>M. Wu</u> (University of Leoben, Austria), G. Reinhart, H. Nguyen-Thi and A. Ludwig	Grain Refinement of an Al-2 wt.%Cu Alloy by Al3Ti1B Master Alloy and Ultrasonic Treatment Q. Wang, <u>G. Wang</u> (The University of Queensland, Australia), M.S. Dargusch, Q. Ma, D.G. Eskin and D.H. StJohn	Numerical Simulation and Optimization of Casting Process for Discharge Bowl E.J. Guo, <u>S.C. Zhao</u> (Harbin University of Science and Technology, China), L.P. Wang, H.L. Jia, T. Wu, B.P. Xin and J.J. Tan
14:40	Time-resolved measurement of the nucleation and growth of equiaxed grains by synchrotron X-ray radiography <u>E. Liotti</u> (University of Oxford, UK), S. Kumar, K.A.Q. O’Reilly, T. Connolly and P.S. Grant	4D In Situ Solidification of Al-Si Alloys with and without Ultrasonic Treatment <u>R. Daudin</u> (Université de Grenoble Alpes, France), S. Terzi, P. Lhuissier, E. Boller, A. Rack and L. Salvo	Experimental Analysis of the Predictability of the Solidification Process of Tin-Lead Alloy <u>Y. Fautrelle</u> (Grenoble Institute of Technology/SIMAP laboratory, France), L. Hachani and K. Zaidat
15:00	A Simple Analytical Model For Fully Equiaxed Solidification <u>B. Jiang</u> (BCAST, Brunel University, UK) and Z. Fan	Influence of Forced Convection on Solidification and Remelting in the Developing Mushy Zone <u>M. Wu</u> (University of Leoben, Austria), A. Vakhruhev, A. Kharicha and A. Ludwig	Process-Scale Modeling of Microstructure in Direct Chill Casting of Aluminum Alloys <u>M. Bedel</u> (CNRS – Université de Lorraine, France), L. Heyvaert, M. Založnik, H. Combeau, D. Daloz and G. Lesoult
15:20	Three-Dimensional Mesoscopic Modeling of Equiaxed Dendritic Solidification in a Binary Alloy <u>Y. Souhar</u> (CNRS – Université de Lorraine, France), V.F. De Felice, M. Založnik, H. Combeau and C. Beckermann	Synchrotron Radiation X-ray Imaging of Ultrasonic Cavitation Zone in Al-Cu Alloy Melt and Subsequent Solidification <u>D. Shu</u> (Shanghai Jiao Tong University, China), H. Huang, J. Wang, B. Sun, J. Mi and P.S. Grant	Numerical Simulation on the Solidification Structure of $\Phi 600\text{mm}$ Q345E Steel During Continuous Casting Process <u>Q. Fang</u> (Wuhan University of Science and Technology, China), H. Ni, S. Wang and H. Zhang

BREAK

Room A - Dendritic Growth IV

Chairman: Professor Shuzu Lu

16:10	Mesoscopic Modeling of Columnar Solidification <u>M. Založnik</u> (Institut Jean Lamour, France), A. Viardin, Y. Souhar, H. Combeau and M. Apel
16:30	Phase-Field Modeling of $\beta(\text{Ti})$ Solidification in Ti-45at.%Al : Columnar Dendrite Growth at Various Gravity Levels <u>A. Viardin</u> (ACCESS e.V, Germany), R. Berger, L. Sturz, M. Apel and U. Hecht
16:50	Understanding the Influence of Growth Parameters in Columnar Solidification Using a Bridgman Furnace Front Tracking Model R.P. Mooney and <u>S. McFadden</u> (Trinity College Dublin, Ireland)
17:10	Numerical Investigation of Solidification and CET of the Transparent Alloy NPG-37.5 wt.% DC in Microgravity “TRACE” Experiment M. Ahmadein, <u>M. Wu</u> (University of Leoben, Austria), L. Sturz, G. Zimmermann and A. Ludwig
17:30	Modelling of Columnar-to-Equiaxed and Equiaxed-to-Columnar Transitions in Ingots Using a Multiphase Model <u>N. Leriche</u> (Université de Lorraine - Institut Jean Lamour, France), H. Combeau, Ch.-A. Gandin and M. Založnik

Room B - Solidification Under External Fields III

Chairman: Dr Jiawei Mi

Invited Lecture: Influence of Thermo-electric-magnetic Currents on Convection and Solidification <u>Y. Fautrelle</u> (Grenoble Institute of Technology, France), J. Wang, G. Salloum Abou-Jaoude, O. Budenkova, G. Reinhart, N. Mangelinck, X. Li, H. Nguyen-Thi and Z.M. Ren
Unidirectional Solidification of Al-7wt.%Si-1wt.%Fe Alloy in Travelling Magnetic Field A. Rónaföldi, J. Kovács and <u>A. Roósz</u> (MTA-ME Material Science Research Group, Hungary)
Effect of a Static Magnetic Field on Solid/Liquid Transformation C.J. Li, <u>Z.M. Ren</u> (Shanghai University, China), J.B. Yu, K. Deng, Z.Q. Zhang and X.F. Ren
Microstructure Refinement of Commercial 7xxx Aluminium Alloys Solidified by the Electromagnetic Vibration Technique <u>M. Li</u> (National Institute of Advanced Industrial Science and Technology (AIST), Japan), T. Takuya, N. Omura, Y. Murakami and S. Tada
Control of Solidification Microstructure Using Programmable Electro-Magnetic Pulses <u>T. Manuwong</u> (University of Hull, UK), Z. Guo, W. Zhang, P.L. Kazinczi and J. Mi

Room C - Advanced Solidification Processing IV

Chairman:

Production of As-Cast SiC Particle Reinforced A356 Al-Alloy MMC by Application of High Shear Melt Processing X. Yang, S. Ji, <u>I.C. Stone</u> (BCAST, Brunel University, UK) and Z. Fan
Nanoparticles Enabled Solidification Nanoprocessing <u>X. Li</u> (University of California, USA), J. Xu and L. Chen
Prediction of δ Ferrite Content in SUS304 Slab by Multi-Phase Field Method <u>T. Kawagoe</u> (Nisshin Steel Co. Ltd., Japan) and J. Katsuki
Studies on Synthesis of In-situ Al-TiC Metal Matrix Composites <u>R.N. Rai</u> (NIT Agartala, India), S.C. Saha, G.L. Datta and M. Chakraborty
Studies on Solidification of Al-Cu-TiC Metal Matrix Composites R.N. Rai, P. Gupta, D. Das, B. Das and <u>S.C. Saha</u> (NIT Agartala, India)

CONFERENCE DINNER

FRIDAY 11TH JULY

Plenary Session IV

Chairman: Professor Wilfried Kurz

- 08:30** Sixty Years of Casting Research
J. Campbell (University of Birmingham, UK)
- 09:00** The Role of Constitutional Supercooling in Promoting Grain Refinement
D.H. StJohn (University of Queensland, Australia), A. Prasad, M. Qian and M.A. Easton
- 09:30** How to model nucleation when the nucleation rate does not exist?
R.P. Sear (University of Surrey, UK)
- 10:00** Physical Classification of Macroseggregation
A. Ludwig (University of Leoben, Austria), M. Wu and A. Kharich

BREAK

Room A - Microstructure Formation

Chairman: Dr David Browne

- 11:00** **Invited Lecture:** Crystallographic Orientation Relationship between δ and γ in the Massive-Like Transformation of Fe-C Alloys
H. Yasuda (Kyoto University, Japan), M. Kiire, T. Nishimura, T. Nagira, M. Yoshiya, A. Sugiyama and K. Kajiwara
- 11:20** Predicting the As-Cast Grain Size of Inoculated Aluminium Alloys
Y.J. Li (Norwegian University of Science and Technology, Norway) and Q. Du
- 11:40** The Microstructure of Rare-Earths Modified Aluminum Alloys
Z. Shi (Inner Mongolia University of Technology, China)
- 12:00** Characterization of Initial Solidification Using EBSD
H. Esaka (National Defense Academy, Japan), Y. Kataoka and K. Shinozuka
- 12:20** Physical Simulation of Solidification: a Novel Tool for Accelerated Screening of Solidification-Microstructure Relationships
S. Milenkovic (IMDEA Materials Institute, Spain), M. Rahimian and I. Sabirov

Room B - Solidification Under External Fields IV

Chairman: Professor Dmitry Eskin

- Invited Lecture:** Effect of Electromagnetic Vibration on the Microstructure of Direct Chill Cast Al-Zn-Mg-Cu Alloy
Y. Zuo (Northeastern University, China), X. Fu, P. Wang and J. Cui
- Macroseggregation in Direct Chill Casting of an Al-Cu Billet: the Link Between Microstructure and Hydrodynamics
L. Heyvaert (Institut Jean Lamour, CNRS – Université de Lorraine, France), M. Bedel, M. Založnik and H. Combeau
- The Effect of Rotating Magnetic Field on the Microstructure of In Situ TiB₂/Cu Composites
C. Zou (Dalian University of Technology, P. R. China), H. Kang, R. Li, W. Wang, M. Li and T.M. Wang
- In Situ X-ray Radiography Study on the Impact of Forced Melt Convection on Solidification Processes
O. Roshchupkina (Helmholtz-Zentrum Dresden-Rossendorf, Germany), N. Shevchenko and S. Eckert
- Direct-Chill Casting of AA7449 Aerospace Alloy under Electromagnetic and Ultrasonic Combined Fields
R. Haghayeghi and P. Kapranos (University of Sheffield, UK)

Room C - Single Crystal Solidification

Chairman: Professor Hongbiao Dong

- Melt Flow and Temperature Gradient Effects on Freckle Formation
N. Shevchenko (Helmholtz-Zentrum Dresden-Rossendorf, Germany), O. Roshchupkina and S. Eckert
- A 3D Microstructural Model of Freckle Initiation from Pre-Existing Imperfections
S. Karagadde (University of Manchester, UK), L. Yuan, N. Shevchenko, S. Eckert and P.D. Lee
- A Study on the Influence of Backdiffusion During Directional Solidification of a Single Crystal Superalloy
N. Warnken (University of Birmingham, UK)
- Analysis of Competitive Growth and Grain Selection in Single-Crystal Casting
M. Javahar (University of Leicester, UK), H.B. Dong and N. D'Souza
- Criterion Function for Predicting Freckles Formation in CMSX-4 during Directional Solidification
B. Pustal (Foundry Institute, RWTH Aachen, Germany), D. Ma, E. Subasic, J. Jakumeit and A. Bührig-Polaczek

12:40 Microstructural Evolution in Mg Alloys: Experimental and Modeling Study
[M. Paliwal](#) (McGill University, Canada) and I.-H. Jung

Constitutional Supercooling Drastically Affected by Changing Electrical Polarity
Only In Application of Misra Technique
[A.K. Misra](#) (KITE, Bhubaneswar, India)

Generation of Single Crystal Growth of a Univariant Eutectic AlCuAg Alloy
[A. Drevermann](#) (Access e.V., Germany) and M. Schaarschmidt

LUNCH & CONFERENCE END

Poster Presentations - Chairman: Professor Zhongyun Fan

- Enhanced Heterogeneous Nucleation of α -Mg on Zr-adsorbed MgO
G.S. Peng (BCAST, Brunel University, UK), Y. Wang and Z. Fan
- Solidification Process of a Cast Hypereutectic Al-Si Alloy
M. Okayasu (Ehime University, Japan) and S. Takeuchi
- Microstructural Evolution in Melt Conditioned Direct Chill (MC-DC) Casting of Al-Fe Alloys
H.R. Kotadia (BCAST, Brunel University, UK), J.B. Patel, H.-T. Li, F. Gao and Z. Fan
- The Use of X-Ray Scattering Techniques to In-situ Observe the Orientation Relationship at the Interface between Substrate and Nucleus
A.J. Brown (University of Leicester, UK), H.B. Dong, P.B. Howes and C.L. Nicklin
- The Effect of Melt Quenching on Magnesium and Aluminium Alloys
B. Jiang (BCAST, Brunel University, UK), J.D. Hunt, S.Z. Lu and Z. Fan
- Plutonium Castings: Utilising Finite Element Modelling with a View to Increase the Average Rate of Solidification
V. Varsani (AWE plc, UK)
- Low energy Electron Irradiation (200 keV) Induced Phase Separation and Crystallization in a Nanoscale Metallic Glass
X. Chen, S. Zhang, M. Xia (School of Materials Science and Engineering, Shanghai Jiao Tong University, Shanghai, China) and J.G. Li
- Coarsening-Driven Dendrite Fragmentation in Directional Solidification
H. Neumann-Heyme (Institute for Fluid Dynamics, Technical University Dresden, Germany), K. Eckert and C. Beckermann
- Numerical Investigation of the Slag/Melt Interface in ESR Process
Z. He (Key Lab. for Ferrous Metallurgy and Resources Utilization, Wuhan University of Science and Technology, China), S. Liu and T. Xia
- Abnormal Grain Refinement of Commercial Purity Mg by High Pressure Diecasting
W.C. Yang (BCAST, Brunel University, UK), G.S. Peng and Z. Fan
- Method for Determination of the Solid/Liquid Interface Velocity in Case of Unidirectional Solidification
J. Kovács (MTA-ME Material Science Research Group, Hungary), A. Rónaföldi and A. Roósz
- Three-Dimensional Grains Envelopes Tracking at the Casting Scale
S. Mosbah (Solidification Modeling Solutions Ltd. San Jose CA, USA)
- Grain refinement of Zinc-Aluminium Foundry Alloys
W.K. Krajewski (AGH University of Science and Technology, Poland), A.L. Greer, P.K. Krajewski and G. Piwowarski
- Fractal Characteristics of Dendrite in Unidirectionally Solidified Aluminum Alloys
K. Ohsasa (Akita University, Japan), Y. Natsume and T. Sekiya
- Numerical Simulation of Casting Processes as a Part of Foundry Production Preparation
A.S. Dubrovskaya (Perm National Research Polytechnic University, Russia), S.A. Chervonnykh, V.A. Eliseev and K.A. Dongauser
- Mechanism of Zr Poisoning Effect on Al-Ti-B Grain Refiner in Aluminium Melts
L. Zhou (BCAST, Brunel University, UK), Y. Wang and Z. Fan
- X-ray Radiography of In-Situ Dendritic Equiaxed Growth in Al-Melts
M. Becker (Institut für Materialphysik im Weltraum, DLR, Germany), S. Klein and F. Kargl
- Microstructural Evolution during Melt Conditioned Twin Roll Casting (MC-TRC) of Al-Mg binary alloys
N.S. Barekar (BCAST, Brunel University, UK), S. Das and Z. Fan
- Refinement of Primary Si Crystals During Solidification of Hypereutectic Al-Si Alloys Using ZnS
K. Al-Helal (BCAST, Brunel University, UK), I.C. Stone and Z. Fan
- CAFE Simulation of Columnar to Equiaxed Transition in Al-7wt%Si Alloys Directionally Solidified under Microgravity
D.R. Liu (School of Materials Science and Engineering, Harbin University of Science and Technology, China), N. Mangelinck-Noël, Ch.-A. Gandin, G. Zimmermann, L. Sturz, H. Nguyen Thi and B. Billia
- Analysis of Crystallizer With Different Seams and Simulation research of the Temperature Field
D. Hu (Shanghai Institute of Technology, China) and D. Ye
- Grain Refinement Studies in Mg-Al Alloys
U. Joshi (BCAST, Brunel University, UK) and N.H. Babu
- In-situ Investigation of Solutal Melting using Laser Scanning Confocal Microscopy
L. Deillon (Institut Jean Lamour, Université de Lorraine, France), J. Zollinger, D. Daloz, M. Založnik and H. Combeau
- A Model for Carbide Distribution on Centrifugal Casting of a Ferrous Alloy
R. Heringer (UFPA, Materials Modelling Laboratory, Brazil)
- Grain Refining Potency of an Oxide Based Master Alloy in Aluminium Alloys
V.M. Sreekumar (BCAST, Brunel University, UK), N.Hari. Babu, D.G. Eskin and Z. Fan
- The Effect of Alloy Elements on the Density Change of Steel Melt at the Interdendritic Region during Solidification
Y.F. Cao, Y. Chen (Institute of Metal Research, Chinese Academy of Sciences, China), X.P. Ma, X.H. Kang and D.Z. Li
- Processing and Characterization of Al-7Si-0.6Mg-xTiB₂(x= 5, 10 wt. %) In-Situ Composite Foams Through Liquid State Method
U.A. Atturan (Indian Institute of Technology Madras, India), S.H. Nandam and S. Sankaran
- A development of the "Jackson-Hunt" theory for lamellar eutectic growth and asymmetrical phase diagrams
W. Wołczyński (Institute of Metallurgy and Materials Science, Poland)
- Effect of Solidification Velocity by Forced Convection on Microstructure and Fe-rich Intermetallics in AlSi Alloys
P. Mikołajczak (Institute of Materials Technology, Poznan University of Technology, Poland) and L. Ratke
- Investigation on Developing Nickel Rich Layer on Continuous Casting Slab by Ni-Containing Mold Flux
T.I. Chung (Graduate Institute of Ferrous Technology, Pohang University of Science and Technology, Korea), J.W. Cho and Y.B. Kang

Microstructure Evolution in Undercooled Melt of Ni-Al Alloys

R. Singh (Institut für Materialphysik im Weltraum, DLR, Germany), M. Kolbe, S. Klein, T. Volkman and D.M. Herlach

Crystal Growth Kinetics in Undercooled Melts of Pure Zr and Zr-Based Alloys

J. Gagner (Institut für Materialphysik im Weltraum, DLR, Germany), R. Kobold and D.M. Herlach

Rapidly Solidified Ag-Cu Eutectics: A Comparative Study using Drop-Tube and Melt Fluxing techniques

A.M. Mullis, Y. Yu (University of Leeds, UK) and R.F. Cochrane

Effect of Sn Addition to $Ti_{60}(Ni_xCu_{40-x})_{40}$ Alloys on Glass Forming Ability

V. Rontó (MTA-ME Materials Science Research Group, Miskolc, Hungary), A. Sycheva, J. Sólyom, P. Pekker, I. Cora and É. Fazakas

A Molecular Dynamics Study on the Equilibrium Atomic Arrangement at the Solid/Liquid Interfaces in Aluminium

H. Men (BCAST, Brunel University, UK) and Z. Fan

A General Model for Spherical Growth in Solidification

Z. Fan, J.D. Hunt and S.Z. Lu (BCAST, Brunel University, UK)

Effect of Cr on the Liquid Diffusion Coefficients of Solute Elements in Al-Zn-Cr Alloys

G. Kurtuldu (Computational Materials Laboratory, EPFL, Switzerland), P. Jarry and M. Rappaz

Modification of Ohnaka Back Diffusion Equation for Microsegregation

A. Turkeli (University of Marmara, Istanbul, Turkey)

A Molecular Dynamics Study on Growth Kinetics in Molten Al

H. Men (BCAST, Brunel University, UK) and Z. Fan

Correlation between Microstructure and Hardness of a Bi-1.5wt%Ag Lead-Free Solder Alloy

J.E. Spinelli (Department of Materials Engineering, Federal University of São Carlos – UFSCar, Brazil), R.A. Macedo, B.L. Silva and A. Garcia

Evolution of Microstructure and Mechanical Properties of Rare-earth Modified Al-1.0wt% Fe Alloys with Processing Procedures

Z. Shi (School of Materials Science and Engineering, Inner Mongolia University of Technology, China), K. Gao, Y. Shi, Y. Wang and B. Chi

Analysis and Simulation of Non-Metallic Inclusions in Spheroidal Cast Iron

B. Pustal (Foundry Institute at RWTH Aachen University, Germany), B. SchelInberger and A. Bührig-Polaczek

Imaging Granular Deformation in Semi-Solid Alloys using X-ray Tomography

K.M. Kereh (Imperial College London, UK), P.D. Lee, R.C. Atwood and C.M. Gourlay

Numerical Study of Influence of Inclusion Movement on Channel Segregation in Iron-Carbon System

D.R. Liu (School of Materials Science and Engineering, Harbin University of Science and Technology, China), L.P. Wang and B.X. Ma

The Behaviour of Entrainment Defects Formed in Mg-alloys under a Cover Gas of SF_6

T. Li (University of Birmingham), K.H. Kim and W. D. Griffiths

Use of a Phenomenological Chemical Scale for the Identification of High Distribution Coefficient Impurities within the ITS-90

D. Lowe (National Physical Laboratory, UK)

Influence of Casting Defects on Stress Rupture Properties of Investment Superalloy Casting

J. Wang (Shanghai Jiaotong University, China), H. Gao and M. Kang

Predicting Texture in Near Net-Shape Low-Pressure Turbine Blades Produced by Centrifugal Investment Casting using GE-48-2-2 Alloy

L. Sturz (Access e.V. Aachen, Germany), O. Kättlitz and J. Jakumeit

Numerical Simulation on Level Fluctuation in Bloom Casting Mold with Electromagnetic Stirring

H. Zhang (Key Lab. for Ferrous Metallurgy and Resources Utilization, Wuhan University of Science and Technology, China), H. Ni, Y. Li and Z. Zhao

A Multiphysics and Multiscale Model for Low Frequency Electromagnetic DC Casting

N. Košnik, A.Z. Guštin (Institute of Metals and Technology, Slovenia), B. Mavrič and B. Šarler

Mechanical Properties of Novel Suction Cast Multicomponent Ti-Fe-Co Alloys

S. Samal, S. Agarwal and K. Biswas (Department of Material Science and Engineering, IIT Kanpur, India)

Development of Novel Suction Cast Multicomponent Nb-Si-W Alloys

B. Paira, K. Kulkarni and K. Biswas (Indian Institute of Technology Kanpur, India)

Effect of Cerium Addition on Metal/Chill Interfacial Heat Flux and Casting Surface Profile during solidification of Al-14% Si alloy

K.N. Prabhu (National Institute of Technology Karnataka, India) and V. Vijeesh

Fluidity and Solidification Mechanisms of A20X with TiB_2 Particulate Reinforcement

I. Hayes (University of Birmingham, UK), H. Phull and W.D. Griffiths

Grain Selection of Ni-Base Single Crystal Superalloys during Directional Solidification

L. Liu (Northwestern Polytechnical University, China)

Effects of TiB_2 Particles on the Activation Energy of Ω Phase in Al Alloys

F. Melotti (University of Birmingham), A. Dustan, T. Hirst, W.D. Griffiths

$BaZrO_3$ Refractory Applied to the Directional Solidification of TiAl Alloys

J. He (Shanghai Key Laboratory of Modern Metallurgy & Materials Processing, Shanghai University, China), C. Wei, D. Meng, W. Zhu, X. Lu, H. Wang and C. Li

Applications of the directional solidification in magnetic shape memory alloys

Y.J. Huang, J. Liu, Q.D. Hu, Q.H. Liu, I. Karaman and J.G. Li (School of Materials Science and Engineering, Shanghai Jiaotong University)

Aging characteristics of the Al-Si-Cu-Mg cast alloy modified with transition metals Zr, V and Ti

F. Czerwinski (CanmetMATERIALS, Canada), S. K. Shaha, D.L. Chen and W. Kasprzak

The Role of TiB_2 in Strengthening TiB_2 Reinforced Aluminium Casting Composites

Z. Chen (School of Materials Science and Engineering, Dalian University of Technology, China), H. Kang, Y. Zhao, Y. Zheng and T. Wang

Comparison between Prediction of Liquid Fraction versus Temperature and Experimental Results from DSC and SPSC

D. Zhang (University of Leicester), H. Atkinson, H. Dong and Q. Zhu

Effect of Superheat on Macrostructure and Macrosegregation in Continuous Cast Low-alloy Steel Slabs

T.P. Pikkarainen (Centre for Advanced Steels Research, University of Oulu, Finland), V.V. Vuorenmaa, I.A. Rentola, M.J. Leinonen and D.A. Porter

Microstructural Evolution and Mechanical Properties of Novel Suction Cast Multicomponent Nb-Si-Cr Alloys

B. Paira, K. Kulkarni and K. Biswas (Department of Material Science and Engineering, IIT Kanpur, India)

Oriented Solidification of Tb-Dy-Fe Magnetostrictive Ingot by Rotation of Nucleus under a Static Magnetic Field

J.G. Li (School of Materials Science and Engineering, Shanghai Jiaotong University) and G. Zhang

Direct imaging of bubble behavior in superheated Al-Ca alloy melt

S.G. Zhang, L. Zhang, W.Q. Lu (School of Materials Science and Engineering, Shanghai Jiao Tong University, Shanghai, China), W. Zhang, J.D. Yu, Y.N. Fu and J.G. Li

In-situ Processing of an Al-5Ti-B Master Alloy using Ultrasound

E. Dian (BCAST, Brunel University, UK), N. Hari Babu, D.G. Eskin and Z. Fan

Surface Solid and Liquid Phase Processing in the ms-range using Flash Lamp Annealing

K. Wiesenhütter (Helmholtz-Zentrum Dresden Rossendorf, Germany), T. Schumann, S. Prucnal, F. Bregolin, R. Wutzler, D. Reichel, R. Zichner, P. Lindberg and L. Vines