

Session Program

17-21 Jun 2019



5th International Conference on Advances in Solidification Processes (ICASP-5) 5th International Symposium on Cutting Edge of Computer Simulation of Solidification, Casting and Refining (CSSCR-5)

Dendritic microstructure

IMLAUER HOTEL PITTER SALZBURG
Rainerstraße 6, 5020 Salzburg, Austria

Tuesday 18 June

10:30

Dendritic microstructure: Characterization

Session | **Location:** IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

10:30–10:50

DIRECT OBSERVATION OF DENDRITE FRAGMENTATION IN THE SOLIDIFICATION OF UNDERCOOLED MELTS

Speaker

Andrew Mullis

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

10:50–11:10

STUDY OF NUCLEATION AND GROWTH IN RAPIDLY SOLIDIFYING Al-Ni ALLOYS

Speaker

Marcus Reinartz

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

11:10–11:30

PRIMARY DENDRITE TRUNK DIAMETER IN Al-7wt% ALLOY DIRECTIONALLY SOLIDIFIED ABOARD THE INTERNATIONAL SPACE STATION

Speaker

Prof. Surendra Tewari

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

11:30–11:50

FORMATION CONDITION AND PATTERN EVOLUTION OF TWINNED DENDRITES IN Al-4.5%Cu ALLOY DURING BRIDGMAN SOLIDIFICATION

Speaker

Shuangming Li

Location

IMLAUER HOTEL PITTER SALZBURG, P4

11:50–12:10

SOLIDIFICATION BEHAVIOUR OF HYPOEUTECTIC QUATERNARY Al-Cu-Si-Mg BASED HPDC ALLOYS

Speaker

Qing Cai

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

12:10

13:30

Dendritic microstructure: In situ experiments**Session** | **Location:** IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

13:30–14:00

VISUALISATION OF MELT FLOW EFFECTS ON DENDRITIC SOLIDIFICATION**Speaker**

Natalia Shevchenko

Location

IMLAUER HOTEL PITTER SALZBURG, P4

14:00–14:20

IN SITU STUDIES OF NATURAL CONVECTION DURING SOLIDIFICATION OF TERNARY MIXTURES**Speaker**

Virkeshwar Kumar

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

14:20–14:40

TIME-RESOLVED X-RAY TOMOGRAPHY STUDIES OF DENDRITIC EVOLUTION IN Al-Cu ALLOYS**Speaker**

Kate Elder

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

14:40–15:00

3D PATTERN EVOLUTION DURING DIRECTIONAL SOLIDIFICATION OF A TRANSPARENT ALLOY CONDUCTED ON DECLIC-DSI**Speaker**

Fatima Mota

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

15:00–15:20

MICROSTRUCTURE EVOLUTION OF AN Al-Cu ALLOY IN THIN-SAMPLE POLYCRYSTALLINE SOLIDIFICATION: IN SITU SYNCHROTON X-RAY RADIOGRAPHY IMAGING AND FULL-SCALE PHASE-FIELD SIMULATIONS**Speaker**

Tong Zhao Gong

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

15:40

16:10

Dendritic microstructure: Microscopic modeling #1**Session** | **Location:** IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

16:10–16:30

CAPILLARY-MEDIATED SOLID-LIQUID ENERGY FIELDS: THEIR DETECTION WITH PHASE-FIELD METHOD**Speaker**

Martin Glicksman

16:30–16:50

ANALYSIS AND MODELING OF DENDRITE FRAGMENTATION IN DIRECTIONAL SOLIDIFICATION**Speaker**

Hieram Neumann-Heyme

16:50–17:10

A NOVEL ROUTE TO THE COUPLING OF MOLECULAR DYNAMICS AND PHASE-FIELD SIMULATIONS OF CRYSTAL GROWTH**Speaker**

Peter Bollada

17:10–17:30

PHASE-FIELD MODELLING OF NON-EQUILIBRIUM SOLIDIFICATION BY THE THERMODYNAMIC EXTREMAL PRINCIPLE**Speaker**

Haifeng Wang

17:30–17:50

KINETICS OF RAPID CRYSTAL GROWTH: PHASE FIELD THEORY VERSUS ATOMISTIC SIMULATIONS**Speaker**

Peter Galenko

17:50

Wednesday 19 June

10:30

Dendritic microstructure: Microscopic modeling #2

Session | **Location:** IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

10:30–10:50

MESHLESS PHASE FIELD MODELING OF DENDRITIC GROWTH BY USING AN H-ADAPTIVE COMPUTATIONAL NODE ARRANGEMENT

Speaker

Tadej Dobravec

10:50–11:10

MULTISCALE MATHEMATICAL SIMULATION STUDIES ON THE 3-D MORPHOLOGY AND ORIENTATION SELECTION MECHANISM OF MAGNESIUM ALLOY DENDRITE

Speaker

Jinglian Du

11:10–11:30

SENSITIVITY OF OSCILATORY GROWTH MODES TO MISORIENTATIONS OF THE CRYSTAL AXES

Speaker

Jean-Marc Debierre

11:30–11:50

LARGE-SCALE MULTI-PHASE-FIELD SIMULATION OF POLYCRYSTALLINE GRAIN GROWTH WITH ANISOTROPIC GRAIN BOUNDARY PROPERTIES

Speaker

Eisuke Miyoshi

11:50–12:10

SOLIDIFICATION MICROSTRUCTURES IN LPBF PROCESSED IN718

Speaker

Guillaume Boussinot

12:10

13:30

Dendritic microstructure: Mesoscopic modeling #1

Session | **Location:** IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

13:30–14:00

A 3D DISCRETE-ELEMENT MODEL FOR SIMULATING LIQUID FEEDING DURING DENDRITIC SOLIDIFICATION OF STEEL

Speaker

Yi Feng

Location

IMLAUER HOTEL PITTER SALZBURG, P4

14:00–14:20

MULTISCALE MODELING OF DENDRITIC GROWTH USING THE DENDRITIC NEEDLE NETWORK APPROACH: RECENT DEVELOPMENTS AND FUTURE DIRECTIONS

Speaker

Damien Tournet

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

14:20–14:40

MESOSCALE ENVELOPE MODELLING OF COLUMNAR GROWTH AND CONDITIONS FOR CET IN NPG-DC ALLOY**Speaker**

Alexandre Viardin

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

14:40–15:00

A MESOSCOPIC MODEL FOR SOLIDIFICATION OF SYSTEMS OF LARGE NUMBER OF COLUMNAR DENDRITES**Speaker**

Abdellah kharicha

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

15:00–15:20

3D DENDRITE NEEDLE NETWORK MODELING AND X-RAY RADIOGRAPHY OF EQUIAXED ALLOY SOLIDIFICATION IN GRAIN-REFINED Al-3.5wt.-%Ni**Speaker**

Laszlo Sturz

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

15:20–15:40

THREE-DIMENSIONAL MESOSCOPIC MODELING OF EQUIAXED DENDRITIC SOLIDIFICATION IN A THIN SAMPLE: EFFECT OF CONVECTION FLOW**Speaker**

ANTONIO OLMEDILLA

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

15:40

Thursday 20 June

10:30

Dendritic microstructure: Mesoscopic modeling #2

Session | **Location:** IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

10:30–10:50

MULTI-PHASE-FIELD LATTICE BOLTZMANN SIMULATIONS DURING FORMATION PROCESS OF EQUIAXED STRUCTURE CONSIDERING DENDRITE MOTION

Speaker

Tomohiro Takaki

10:50–11:10

NUMERICAL SIMULATIONS OF SOLIDIFICATION STRUCTURES AND MACROSEGREGATION BY A CELLULAR AUTOMATON MODEL COUPLED WITH FLOW CALCULATION

Speaker

Yukinobu Natsume

11:10–11:30

DIRECT NUMERICAL SIMULATIONS OF FLOTATION OF LIGHT OXIDE INCLUSIONS IN STEEL MELT AND INTERACTION WITH GROWING DENDRITIC CRYSTALS

Speaker

Yun Chen

11:30–11:50

THE EFFECT OF NUCLEANT PARTICLE AGGLOMERATION ON THE EFFECTIVENESS OF GRAIN REFINEMENT BY A CELLULAR AUTOMATON APPROACH

Speaker

Alain Jacot

11:50–12:10

THREE-DIMENSIONAL PHASE-FIELD LATTICE-BOLTZMANN MODELING ON DENDRITIC AND EUTECTIC GROWTH WITH COUPLED THERMAL-SOLUTE-CONVECTION FIELDS

Speaker

Ang Zhang

12:10

13:30

Dendritic microstructure: Macroscopic modeling #1

Session | **Location:** IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

13:30–14:00

SIMULATION OF MACROSEGREGATION AND COLUMNAR TO EQUIAXED TRANSITION IN A NUMERICAL SOLIDIFICATION BENCHMARK PROBLEM

Speaker

Christoph Beckermann

Location

IMLAUER HOTEL PITTER SALZBURG, P4

14:00–14:20

COMPARISON OF NUMERICAL MACROSCOPIC MODEL FOR SEGREGATION IN SOLIDIFICATION OF BINARY ALLOYS BASED ON A MESO-SCALE EQUIAXED SOLIDIFICATION**Speaker**

Olga BUDENKOVA

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

14:20–14:40

THREE-PHASE NUMERICAL MODELING FOR EQUIAXED SOLIDIFICATION OF Sn-10 wt.%Pb ALLOY UNDER FORCED CONVECTION DRIVEN BY ELECTROMAGNETIC FORCE**Speaker**

Tao WANG

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

14:40–15:00

FINITE DIFFUSION MICROSEGREGATION MODEL APPLIED TO MULTICOMPONENT ALLOYS**Speaker**

Vincent Maguin

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

15:00–15:20

EFFICIENT MODEL FOR THE PREDICTION OF DENDRITIC GRAIN GROWTH USING THE LATTICE BOLTZMANN METHOD COUPLED WITH A CELLULAR AUTOMATON ALGORITHM**Speaker**

Stephan Jäger

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

15:40

16:10

Dendritic microstructure: Macroscopic modeling #2**Session** | **Location:** IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

16:10–16:30

ANALYSIS OF THE IMPACT OF INLET INDUCED FORCED CONVECTION ON MACROSEGREGATION FORMATION IN DC CASTING OF ALUMINIUM SHEET INGOTS**Speaker**

Mohammed M'Hamdi

Location

IMLAUER HOTEL PITTER SALZBURG, P4

16:30–16:50

PREDICTION OF SOLIDIFICATION STRUCTURES IN A 9.8 TON STEEL INGOT**Speaker**

Benjamin Gerin

Location

IMLAUER HOTEL PITTER SALZBURG, P4

16:50–17:10

THE PREDICTION OF CASTING DEFECTS: FROM MACROSEGREGATION TO MULTI-DEFECTS MODELLING**Speaker**

JUN LI

Location

IMLAUER HOTEL PITTER SALZBURG, P4

17:10–17:30

EFFECT OF THE CORIOLIS FORCE ON THE MACROSEGREGATION OF ALUMINUM IN THE CENTRIFUGAL CASTING OF Ti-Al ALLOYS**Speaker**

Martín Matías Cisternas Fernández

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

17:30–17:50

3D MACROSEGREGATION AND FLOW CHARACTERIZATION OF HORIZONTAL DIRECT CHILL CAST ALUMINIUM SLABS**Speaker**

Mr John Coleman

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

17:50

Friday 21 June

10:30

Dendritic microstructure: Role of magnetic field

Session | **Location:** IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

10:30–10:50

INFLUENCE OF THERMOELECTRIC-MAGNETIC EFFECT ON SOLIDIFICATION OF ALLOYS

Speaker

Zhongming REN

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

10:50–11:10

MODELLING OF MAGNETO-THERMO-ELECTRIC EFFECT ON SOLID GRAINS TRAJECTORIES DURING SOLIFICATION OF AICu ALLOYS UNDER LOW FREQUENCY MAGNETIC FIELD

Speaker

YVES DU TERRAIL COUVAT

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

11:10–11:30

NUMERICAL SIMULATION OF FORCED FLUID FLOW IN THE MUSHY ZONE WITH THE EXISTING OF INTERMETALLIC PHASE IN AISi7Fe1 ALLOY

Speaker

Haijie Zhang

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria

11:30–11:50

FORMATION OF METASTABLE MICROSTRUCTURES IN Al-45wt%Cu ALLOY QUENCHED IN HIGH MAGNETIC FIELD

Speaker

Chuanjun Li

Location

IMLAUER HOTEL PITTER SALZBURG, P4

11:50–12:10

INSTABILITY PATTERN FORMATION AND MAGNETISM OF LIQUID METALS BY USING LIQUID-LIQUID PHASE SEPARATION UNDER HIGH MAGNETIC FIELD

Speaker

JUN WANG

Location

IMLAUER HOTEL PITTER SALZBURG, P4

12:10–12:30

ELECTROMAGNETIC EFFECTS OF MELT AND DENDRITE GROWTH WITH PULSED MAGNETIC FIELD

12:30

Speaker

Yuansheng Yang

Location

IMLAUER HOTEL PITTER SALZBURG, P4, Rainerstraße 6, 5020 Salzburg, Austria