

Solidification Course 2024

Programme

31st Edition

Les Diablerets (Switzerland)

April 14 - 19, 2024

THE LECTURERS

Courses, discussions, and exercises will be presented by the following lecturers:

<i>Prof. Christoph Beckermann</i>	Professor, University of Iowa, Iowa City, USA
<i>Prof. Hervé Combeau</i>	Professor, Lorraine University, Institut Jean Lamour, Nancy, France
<i>Prof. Jon Dantzig</i>	Professor Emeritus, University of Illinois, Urbana, USA
<i>Dr Marco Gremaud</i>	Former Director of ESI Group Manufacturing Division, Lausanne, Switzerland
<i>Dr Alain Jacot</i>	Manager, R&D – Physics & Materials, ESI Group, Switzerland
<i>Prof. Matthew John M. Krane</i>	Professor, Purdue University, USA
<i>Prof. Andreas Ludwig</i>	Professor, Montanuniversitaet Leoben, Austria
<i>Prof. André Phillion</i>	Professor, McMaster University, Hamilton, ON, Canada
<i>Prof. Michel Rappaz</i>	Professor Emeritus, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

PROGRAMME

Sunday April 14, 2024

From 18:30 Welcome of the participants, registration
19.15 Dinner

Monday April 15, 2024

08.30 - 09.45 Introduction / Overview of solidification phenomena M. Gremaud
09.45 - 10.15 Break
10.15 - 11.15 Phase diagrams ~~J. Dantzig~~ M. Rappaz
11.15 - 12.15 Discussion/Exercises (Phase diagrams) C. Beckermann / M. Rappaz
12.30 Lunch
13.45 - 14.45 Heat and Mass transfer M. Krane
14.45 - 15.45 Discussion/Exercises (Heat-Mass transfer) H. Combeau / M. Krane
15.45 - 16.15 Break
16.15 - 17.15 Nucleation and grain refinement in alloys A. Ludwig
17.15 - 18.00 In-situ visualization of solidification (films) A. Jacot
18.30 Social Hour
19.30 Dinner

Tuesday April 16, 2024

08.30 - 09.30 Microsegregation C. Beckermann
09.30 - 10.30 Discussion/Exercises (Microsegregation) A. Ludwig / C. Beckermann
10.30 - 11.00 Break
11.00 - 12.00 Dendritic structures ~~J. Dantzig~~ A. Phillion
12:15 Lunch
14.00 - 15.00 Eutectic solidification A. Ludwig
15.00 - 16.15 Discussion/Exercises (Dendrites-Eutectic) ~~J. Dantzig~~ / A. Ludwig
16.15 - 16.45 Break
16.45 - 17.45 Mushy zone dynamics H. Combeau
18.30 "Swiss Evening" dinner

Wednesday April 17, 2024

08.30 - 09.30	Porosity	C. Beckermann
09.30 - 10.30	Discussion/Exercises (Porosity)	H. Combeau / C. Beckermann
10.30 - 11.00	Break	
11.00 - 12.00	Columnar and equiaxed structures	H. Combeau
12.15	Lunch	
	Free time (free discussions with the professors)	
18.15	Social hour	
19.15	Dinner	

Thursday April 18, 2024

08.30 - 09.30	Hot tearing	A. Phillion
09.30 - 10.45	Discussion/Exercises (Hot tearing)	M. Krane / A. Phillion
10.45 - 11.15	Break	
11.15 - 12.15	Additive manufacturing / Rapid solidification	M. Rappaz
12.30	Lunch	
14.15 - 15.15	Macroseggregation	M. Krane
15.15 - 16.30	Discussion/Exercises (Macroseggregation)	A. Ludwig / M. Krane
16.30 - 17.00	Break	
17.00 - 18.00	Answer to participant questions – Panel session	All
18.15	Social hour	
19.15	Dinner	

Friday April 19, 2024

08.30 - 09.30	Solidification path in multi-component systems	M. Rappaz
09.30 - 10.30	Discussion/Exercises (Multi-comp)	J. Dantzig / M. Rappaz
10.30 - 11.00	Break	
11.00 - 11.45	Synthesis – Linking solidification phenomena	A. Phillion
11.45	Concluding remarks	M. Gremaud
12.00	End	
12.15	Lunch	