

## PROGRAM

### BIWIC 2016

#### 23<sup>rd</sup> International Workshop on Industrial Crystallization

September 6 – 8, 2016

Max Planck Institute for Dynamics of Complex Technical Systems  
Magdeburg, Germany



### Tuesday, 6<sup>th</sup> September 2016

18:00 - 20:00 **Informal get-together:** Welcome with beer and a small barbecue  
Registration, fixing posters & presentations and discussion of conference topics

### Wednesday, 7<sup>th</sup> September 2016

8:00	<b>Registration, fixing posters and presentations</b>	
8:30	<b>Welcome by the Managing Director of the MPI &amp; Opening Remarks</b>	
<b>Session 1: Fundamentals of Crystallization</b>		(Session chair: H. Lorenz)
8:40	Formic Acid (FA)/Water Phase Diagram by Means of Temperature-Resolved Second Harmonic Generation and FA Phase Transition: A Reinvestigation	<u>Simon Clevers</u> , L. Yuan, V. Dupray, G. Coquerel
9:05	Solid phase behavior in the system L-valine – L-isoleucine	<u>Anton Isakov</u> , E. Kotelnikova, S. Bocharov, A. Zolotarev Jr, H. Lorenz
9:30	Influence of oiling out on the crystallization of L-menthol in water	<u>Ian de Albuquerque</u> , M. Mazzotti
9:55 - 10:25	<b>Coffee Break + Posters</b>	
<b>Session 2: Separation and Purification in Life-Science Industries</b>		(Session chair: G. Coquerel)
10:25	Stereoselective crystallization of enantiomers as a basis for chiral APIs production	<u>Alexander Bredikhin</u>
11:00	The mechanism by which additives improve the preferential crystallization of L-asparagine monohydrate	P. Kongsamai, A. Maneedaeng, C. Flood, J.H. ter Horst, <u>Adrian E. Flood</u>
11:25	Feasibility study of crystallization-based separation of two chiral agrochemicals	<u>Anne-Kathleen Kort</u> , H. Lorenz, A. Seidel-Morgenstern
11:50	Temperature-cycling-induced Deracemization of a Racemic Compound via its Conglomerate Salt	<u>Weiwei Li</u> , H.J.M. Kramer, J.H. ter Horst
12:15 - 14:30	<b>Conference Photo, Buffet Lunch + Poster Session</b>	
<b>Session 3: Separation and Formulation in Life-Science Industries</b>		(Session chair: H. Qu)
14:30	Evaluating Crystal Agglomeration of an API at Production Scale	<u>Sophie Janbon</u> , L. Ferris, E. Gavi, A. Parsons, R. Reynolds
14:55	Design of Dissolvable Milk Containers for Convenient Handling	<u>Martha Wellner</u> , J. Ulrich
15:20	Effect of additive on glycine crystal habit by impinging jet crystallization	<u>Timea Tari</u> , P. Szabó-Révész, Z. Aigner
16:00 - 18:00	<b>Traditional Football Match</b>	
19:00 - 22:00	<b>Conference Dinner</b>	

Thursday, 8 <sup>th</sup> September 2016		
<b>Session 4: Formulation and Crystallization Monitoring</b> (Session chair: A. Flood)		
8:30	Control of Polymorphic Phase Transformations in Polymer-based Extrusion Processes for Continuous Pharmaceutical Formulation	J.R.H. Espinelli, V. Lopéz-Mejías, <u>Torsten Stelzer</u>
8:55	Determination of evaporation rates in vacuum DTB crystallization of glycine	<u>Johanna Puranen</u> , M. Louhi-Kultanen
9:20	Highly concentrated cooling crystallization of L-glutamic acid and lactose, studied by Photon Density Wave spectroscopy	<u>Roland Hass</u> , O. Reich
9:45 - 10:15	<b>Coffee Break + Posters</b>	
<b>Session 5: Process and Reactor Design in Crystallization</b> (Session chair: J. Ulrich)		
10:15	Study on the crystallization of Sodium 2-Keto-L-gulonate Monohydrate as example for neutral salt recovery of bio acids	<u>Hermann Plate</u> , J. van Esch, C.L. Calvo, J.-C. de Troostembergh, R. Scholz
10:40 <b>New!</b>	Feasibility Study of Calcium Phosphate Precipitation under Specific Conditions in Terms of Development Cascade Crystallization Technology	<u>Liubov Vasenko</u> , H. Qu
11:05	MULTIBLOK™, a new industrial crystallizer design	H.A. Jansen, <u>Claudia Pudack</u>
11:30 - 13:15	<b>Lunch + Poster Session</b>	
<b>Session 6: Reactive Crystallization and Crystallization for Sustainability</b> (Session chair: M. Louhi-Kultanen)		
13:15	Ultrasonic Reactive Crystallization of Manganese Carbonate: Reactor Design and Scale up	<u>Bjorn Gielen</u> , J. Jordens, L.C.J. Thomassen, T. van Gerven, L. Braeken
13:40 <b>New!</b>	Crystal Size Control of HNIW in Drowning out Crystallization	<u>Chae-Ho Lim</u> , K.-J. Kim
14:05	Synthesis of Pt Nanoparticles by Reductive Crystallization using Polyethyleneimine	<u>Hideyuki Nagao</u> , M. Ichiji, I. Hirasawa
14:30	<b>Poster Awards + Closing Remarks</b>	

## Poster presentations

No.	Poster title, authors and affiliation
	<b>Fundamentals</b>
01	A Contribution to the Solution Thermodynamics of Chiral Lactide <u>H. Buchholz</u> , A. Seidel-Morgenstern, H. Lorenz <i>Max Planck Institute for Dynamics of Complex Technical Systems &amp; Otto von Guericke University Magdeburg, Magdeburg</i>
02	On the formation of phenylpiracetam solid solutions: thermodynamic and structural considerations <u>T. Rekis</u> , A. Berziņš, L. Orola, A. Actins, A. Seidel-Morgenstern, H. Lorenz <i>University of Latvia, Riga; Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg</i>
03	Formation of Liquid Inclusions in N-Methyl Urea Single Crystals <u>E. Bobo</u> , G. Coquerel <i>University of Rouen, Rouen</i>
04	1, 3-Dimethylurea Hydration Process Investigation by Temperature-Resolved Second Harmonic Generation L.N. Yuan, S. Clevers, N. Couvrat, Y. Cartigny, <u>V. Dupray</u> , <u>G. Coquerel</u> <i>University of Rouen, Rouen</i>
05	Basic studies on calcium propionate crystallization <u>T. Li</u> , H. Lorenz, A. Seidel-Morgenstern <i>Max Planck Institute for Dynamics of Complex Technical Systems &amp; Otto von Guericke University Magdeburg, Magdeburg</i>
06	Monitoring Phase Transformation Kinetics of Carbamazepine-Nicotinamide Cocrystallization <u>T. Suwannikom</u> , A. Flood <i>Vidyasirimedhi Institute of Science and Technology, Rayong</i>
07	Shape change and growth behavior of monosodium urate monohydrate in model of gout <u>C. Ozono</u> , I. Hirasawa, F. Kohori <i>Waseda University, Shinjuku, Tokyo</i>
08	New Techniques to Determine Growth and Dissolution Kinetics of Protein Crystals <u>R. Oswald</u> , J. Ulrich <i>Martin Luther University Halle-Wittenberg, Halle</i>
09	Comparing the Effects of Mesoporous Seed with Other Crystallisation Parameters in Batch Crystallisation of Hen Egg White Lysozyme <u>K.K.C. Chum</u> , T.C.T. Ho, D.R. Williams, J.Y.Y. Heng <i>Imperial College London, London; Particle Sciences and Engineering UK, GlaxoSmithKline R&amp;D, Stevenage</i>
10	Crystal Nucleation within the Metastable Zone <u>M.L. Briuglia</u> , J.H. ter Horst, J. Sefcik <i>EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation (CMAC); Department of Chemical and Process Engineering &amp; Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Glasgow</i>

11	On the mechanism of ultrasound enhanced nucleation: the effect of the compound density and cavitation bubble type <u>J. Jordens</u> , B. Gielen, L. Braeken, T. Van Gerven <i>KU Leuven, Department of Chemical Engineering, Leuven &amp; Faculty of Industrial Engineering, Diepenbeek</i>
12	Influence of the droplet volume polydispersity on primary nucleation time probability <u>E.C. dos Santos</u> , G.M. Maggioni, A. Ladosz, P. Rudolf von Rohr, M. Mazzotti <i>ETH Zurich, Zurich</i>
13	First step towards a novel cascade design of continuous MSMPR crystallizers – Crystal growth rate measurements <u>M. Ostermann</u> , M. Termühlen, G. Schembecker, K. Wohlgemuth <i>TU Dortmund University, Dortmund</i>
14	Growth Kinetics of Calcium Sulfate Dihydrate in the Presence of Tartaric Acid <u>S. Polat</u> , S. Titz-Sargut, P. Sayan <i>Marmara University, Istanbul</i>
15	Effects of Carboxylic Acids as Additives on Crystallization of Calcium Sulfate Dihydrate <u>S. Polat</u> , S. Titz-Sargut, P. Sayan <i>Marmara University, Istanbul</i>
16	Influence of dissolved gases on solution mediated phase transformation: Case study "glycine" <u>J. Huang</u> , Q. Yin, J. Ulrich <i>Tianjin University, Tianjin; Martin Luther University Halle-Wittenberg, Halle</i>
17	Orientation of Primary Particles in Potash Alum Aggregates <u>T. Kovačević</u> , <u>V. Wiedmeyer</u> , J. Schock, F. Pfeiffer, A. Voigt, K. Sundmacher, H. Briesen <i>Technical University München, Process Systems Engineering, Freising &amp; Biomedical Physics, Garching; Otto von Guericke University Magdeburg, Magdeburg</i>
	<b>Separation &amp; Purification</b>
18	Combination of Preferential Crystallization and Racemization – First Results <u>T. Carneiro</u> , K. Bettenbrock, H. Lorenz, A. Seidel-Morgenstern <i>Max Planck Institute for Dynamics of Complex Technical Systems &amp; Otto von Guericke University Magdeburg, Magdeburg</i>
19	The effective direct resolution procedure for chiral drug bevantolol hydrochloride <u>Z. Bredikhina</u> , O. Antonovich, D. Zakharychev, A. Bredikhin <i>A.E. Arbuzov Institute of Organic and Physical Chemistry of Kazan Scientific Center of Russian Academy of Sciences, Kazan</i>
20	Properties of the Salt of S-Naproxen and N-n-Octyl D-glucamine <u>K. Intaraboonrod</u> , K. Suwannasang, A.E. Flood <i>Vidyasirimedhi Institute of Science and Technology, Rayong</i>
21	Resolution of Biodegradable Raw Material DL-lactic acid via Diastereomeric salts formation with (S)-1-phenylethylamine <u>T. Patirupanon</u> , K. Suwannasang, A.E. Flood <i>Vidyasirimedhi Institute of Science and Technology, Rayong</i>
22	Purification of Herbal Extracts on the Example of Curcumin <u>E. Horosanskaia</u> , A. Seidel-Morgenstern, H. Lorenz <i>Otto von Guericke University Magdeburg &amp; Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg</i>

23	Purification and crystallization of DTPMP <u>A. Winkler</u> , C. Rudolph, W. Voigt <i>TU Bergakademie Freiberg, Freiberg &amp; Zschimmer &amp; Schwarz Mohsdorf GmbH &amp; Co KG, Burgstädt</i>
24	Purification of polycyclic aromatic hydrocarbons by co-crystallization A. Burel, S.J.T. Brugman, N. Couvrat, Y. Cartigny, S. Tisse, P. Cardinael, <u>G. Coquerel</u> <i>University of Rouen, Rouen; Radboud University, Nijmegen</i>
25	Dynamic layer crystallization of high-viscous melts – Case study glycerol-water <u>F.J. Eisenbart</u> , J. Ulrich <i>Martin Luther University Halle-Wittenberg, Halle</i>
26	Continuous Seeding Concept for a Continuous Tubular Cooling Crystallizer <u>L. Hohmann</u> , M. Matuschek, N. Kockmann <i>TU Dortmund University, Dortmund</i>
27	Continuous Crystallization of Enantiopure Crystals through Secondary Nucleation <u>R.R.E. Steendam</u> , J.H. ter Horst <i>EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation (CMAC) &amp; Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Glasgow</i>
	<b>Product Design in Crystallization</b>
28	Liquid-filled Xylitol Candies – An Application of in situ Encapsulation <u>A. Hartwig</u> , J. Ulrich <i>Martin Luther University Halle-Wittenberg, Halle</i>
29	The In-situ Coating Process applied on Ibuprofen Tablets <u>F. Mameri</u> , A. Hartwig, O. Koutchoukali, J. Ulrich <i>University Constantine, Constantine; Martin Luther University Halle-Wittenberg, Halle</i>
30	Analysis of Hydrocolloids in Crystalline Material <u>J. Herfurth</u> , J. Ulrich <i>Martin Luther University Halle-Wittenberg, Halle</i>
31	Generation of Emulsion Drops and Their Crystallization in a Direct Contact Cooling System <u>J. Iqbal</u> , Z. Ali, M. Hussain, J. Ulrich <i>COMSATS Institute of Information Technology, Lahore; Martin Luther University Halle-Wittenberg, Halle</i>
32	Refining the parameters of spherical crystallization methods <u>O. Gyulaj</u> , P. Révész, Z. Aigner <i>University of Szeged, Szeged</i>
33	Approaches to Growth of Large Mixed ADP-KDP Crystals and Bulk Distribution of Compounds <u>S.N. Bocharov</u> , L.Yu. Kryuchkova, S.O. Saveliev <i>St. Petersburg State University, St. Petersburg</i>
34 New!	Wastewater treatment by continuous crystallization <u>H.-J. Jang</u> , K.-J. Kim <i>Hanbat National University, Daejeon</i>

35	Photocatalytic Activity under Visible Light of Synthetic N-doped TiO <sub>2</sub> / Reduced Graphene Oxide Composites <u>J. Chen</u> , X. Wang, Y. Li, N. Zhang, M. Su, J. Han <i>Hebei University of Technology &amp; Engineering Research Center of Seawater Utilization Technology, Tianjin</i>
36	Crystallization of struvite from wastewater: effect of P/N molar ratio on the nucleation behavior <u>Y. Liu</u> , H. Qu <i>University of Southern Denmark, Odense</i>
37	Continuous Separation of Lignin Particles from Ethanol-Water Pulping Liquors <u>P. Schulze</u> , A. Seidel-Morgenstern, H. Lorenz <i>Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg</i>
38	Preventing technology of Zirconium Molybdate Hydrate adhesion by addition of Molybdenum trioxide crystals <u>D. Ito</u> , M. Takeuchi, T. Koizumi, I. Hirasawa <i>Waseda University, Shinjuko, Tokyo &amp; Japan Atomic Energy Agency, Tokai-mura, Naka-gun</i>
39	Particle Engineering of an API for Improved Powder-Flow Properties <u>M. Sowa</u> , A. Klapwijk, M. Ostendorf, W. Beckmann <i>Bayer Technology Services GmbH, Leverkusen; EPSRC Centre for Innovative Manufacturing in Continuous Manufacturing and Crystallisation, University of Bath, Bath</i>
40	Antisolvent Crystallization of Glycine for Miniaturization <u>M. Maiko</u> , I. Hirasawa <i>Waseda University, Shinjuko, Tokyo</i>
41	Crystal Product Design: From Crystal Formation to Its Final Solid Form <u>K. Wohlgemuth</u> , L.-M. Terdenge, G. Schembecker <i>TU Dortmund University, Dortmund</i>
42	Sonocrystallization of L-asparagine monohydrate <u>S. Bhoi</u> , D. Sarkar <i>Indian Institute of Technology, Kharagpur</i>
43	Combined cooling and antisolvent crystallization of L-asparagine monohydrate <u>M. Lenka</u> , D. Sarkar <i>Indian Institute of Technology, Kharagpur</i>
44	Solvent Effect on Polymorphic Crystallization of L-Histidine <u>L. Wantha</u> , N. Punmalee, V. Sawaddiphol, A. Flood <i>Burapha University, Chonburi; Vidyasirimedhi Institute of Science and Technology, Rayong</i>
45	Polymorph Control of L-Arg HCl on Antisolvent Crystallization by Ultrasonic Irradiation <u>Y. Ike</u> , I. Hirasawa <i>Waseda University, Shinjuko, Tokyo</i>
46	Influence of the Composition of Water/Methanol Mixtures and Temperature on the Crystallization Process of Sodium Dehydroacetate <u>X. Zhang</u> , Q. Yin, H. Hao <i>Tianjin University &amp; Collaborative Innovation Center of Chemical Science and Chemical Engineering, Tianjin</i>

	<b>Modelling &amp; Control of Crystallization Processes</b>
47	Model of Chiral Symmetry Breaking Induced by Continuous Temperature Cycles <u>R. Uchin</u> , K. Suwannasang, A.E. Flood <i>Vidyasirimedhi Institute of Science and Technology, Rayong</i>
48	Startup procedures for designing an efficient counter current crystallization process <u>S. Münzberg</u> , H. Lorenz, A. Seidel-Morgenstern <i>Max Planck Institute for Dynamics of Complex Technical Systems &amp; Otto von Guericke University Magdeburg, Magdeburg</i>
49	Calculation of nucleation and growth rate parameters for organic crystal <u>R. Umeda</u> , T. Matsumura, I. Hirasawa <i>Waseda University, Shinjuko, Tokyo</i>
50	Control of MSMPR crystallization processes <u>R. Geyger</u> , R. Dürr, E. Temmel, T. Li, H. Lorenz, S. Palis, A. Seidel-Morgenstern, A. Kienle <i>Otto von Guericke University Magdeburg &amp; Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg</i>
51	Time driven n-monte-carlo simulation an alternative to crystallization population balances <u>T. Maßmann</u> , D. Lohse, M. Schneider, A. Jupke <i>RWTH Aachen University, Aachen</i>
52	A Path Planning Methodology for the Size and Shape Modification of Single Crystals via Temperature Cycling <u>S. Bötschi</u> , D.R. Ochsenbein, M. Morari, M. Mazzotti <i>ETH Zurich, Zurich</i>
53	Experimental investigations of fluid dynamics <u>E. Temmel</u> , A. Bartz, K. Kerst, G. Janiga, H. Lorenz, A. Seidel-Morgenstern <i>Max Planck Institute for Dynamics of Complex Technical Systems &amp; Otto von Guericke University Magdeburg, Magdeburg</i>
54	CFD modelling of barium sulfate precipitation in a Y-mixer <u>P.M. Orlewski</u> , M. Mazzotti <i>ETH Zurich, Zurich</i>
55	Modelling, Validation and Optimization of a Lab and Bench Scale Batch Crystallization Process <u>N.A. Mitchell</u> , S.K. Bermingham, H.S. Mumtaz <i>Process Systems Enterprise (PSE), London</i>
56	Using Modelling to Improve Filtration through PSD Span Reduction <u>N.A. Mitchell</u> , S.K. Bermingham, H.S. Mumtaz <i>Process Systems Enterprise (PSE), London</i>
57	Crystallization and monitoring via sensor technique: an engineering development way <u>B. Karger</u> , A. Alles <i>Thermoanalytik Karger &amp; ITA-Instruments KG, Hettenleidelheim</i>