



17th International Drying Symposium



OCTOBER 3 – 6, 2010
MARITIM HOTEL · MAGDEBURG
GERMANY

P R O G R A M M E

www.ids2010.de



DECHEMA

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IDS 2010

COMMITTEES / SPONSORS

CHAIRMEN

Chairman of the Symposium: Prof. Evangelos Tsotsas University of Magdeburg
Honorary Chairman: Prof. Arun S. Mujumdar Singapore

ORGANIZING COMMITTEE

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 Jun.-Prof. Mirko Peglow University of Magdeburg
 Dr. Uwe Delfs VDI e.V., Düsseldorf
 Prof. Stefan Heinrich Hamburg University of Technology
 Dr. Michael Jacob Glatt Ingenieurtechnik GmbH, Weimar
 Prof. Stefan Palzer Nestlé Research Center, Lausanne
 Dipl.-Ing. Wilfried Pergande Pergande GmbH, Weißandt-Gölzau
 Dr. Michael Schönherr BASF SE, Ludwigshafen

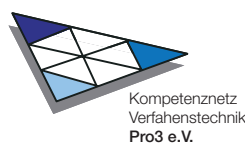
SCIENTIFIC COMMITTEE (IDS ADVISORY PANEL)

Honorary Chairman: A.S. Mujumdar Singapore
Secretary: Z. Pakowski Poland

Members

C.B. Akriditis	Greece	R.B. Keey	New Zealand	M. Roques	France
O. Alves-Filho	Norway	I. Kemp	United Kingdom	A.M. Sereno	Portugal
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R. Bruttini	Italy	T. Kudra	Canada	M.A. Silva	Brazil
C.W. Cao	China	T. Langrish	Australia	S. Soponronnarit	Thailand
I. Farkas	Hungary	A. Léonard	Belgium	C. Strumillo	Poland
L.R. Genskow	USA	A. Mulet	Spain	B.N. Thorat	India
Y. Itaya	Japan	Y.K. Pan	China	E. Tsotsas	Germany
G. Jinescu	Romania	P. Perré	France	R. Wimmerstedt	Sweden
M. Karlsson	Finland	V.G.S. Raghavan	Canada	J.S. Yagoobi	USA

SPONSORS OF IDS 2010



AWARDS / EXHIBITION

IDS 2010 AWARDS

During the Conference Dinner (Tuesday evening, 5 October) the following Awards and their Awardees will be announced:

1. **Excellence in Drying Research Award** – recognizing individual's career achievements and contributions to drying
Sponsor: ProcessNet, Working Party on Drying, Germany
2. **Excellence in Drying Award** – recognizing the transfer of fundamental results to practice
Sponsor: AFSIA (French Association for Drying in Industry and Agriculture)
3. **Nestlé Drying Technology Award IDS2010** – for the best paper on food drying or a related topic at IDS2010
Sponsor: Nestlé Research Center, Switzerland
4. **EFCE Excellence Award in Drying 2010** – recognizing a PhD thesis or publications of a young researcher or engineer
Sponsor: EFCE
5. **Criofarma Award** – recognizing outstanding research work in freeze drying
Sponsor: Criofarma, Italy
6. **Chairman's Award for Lifetime Achievement** – recognizing outstanding, lifetime contributions to drying technology and to the international drying community
Sponsor: Mars, Germany
7. **Arun S. Mujumdar Medal** – by students and associates of Professor Mujumdar to recognize individuals who combine at a high level research, community services and mentoring in drying
8. **Poster Awards (1st, 2nd and 3rd place)** – recognizing excellence in contents and presentation of posters

EXHIBITORS

- | | | |
|---|---|--|
| <p>1 Allgaier Process Technology GmbH
PT/ PRO Trocknungstechnik
Adolf-Safft-Str. 10
73037 Göppingen, Germany</p> | <p>11 ProCon X-Ray GmbH
Anton-Freytag-Str. 23
30823 Garbsen, Germany</p> | <p>7 MPE Group GmbH
Bolz Summix
Simoniusstr. 13
88239 Wangen, Germany</p> |
| <p>18 Buss-SMS-Canzler GmbH
Kaiserstrasse 13-15
35510 Butzbach, Germany</p> | <p>13 Quantachrome GmbH & Co. KG
Rudolf-Diesel-Str. 12
85235 Odelzhausen, Germany</p> | <p>19 Neuhaus Neotec GmbH
Maschinen- und Anlagenbau GmbH
Fockestrasse 67
27777 Ganderkesee, Germany</p> |
| <p>4 Glatt Ingenieurtechnik GmbH
Nordstr. 12
99427 Weimar, Germany</p> | <p>15 Shandong Tianli Drying Equipment Co., Ltd.
Keyuan Road 19
250014 Jinan Shandong, China</p> | <p>10 PERGANDE GmbH
Wilfried-Pergande-Platz 1
06369 Weißbandt-Görlau, Germany</p> |
| <p>20 Intensiv-Filter GmbH & Co. KG
Voßkuhlstr. 63
42555 Velbert-Langenberg</p> | <p>17 WIGRATEC
Wilfried-Pergande-Platz 1
06369 Weißbandt-Görlau, Germany</p> | <p>12 Püschner GmbH + Co. KG
Postfach 11 51
28784 Schwanewede, Germany</p> |
| <p>6 MARTIN CHRIST
Gefriertrocknungsanlagen GmbH
An der Unteren Söse 50
37520 Osterode, Germany</p> | <p>2 Büchi Labortechnik AG
Spray drying
Meierseggstr. 40
9230 Flawil, Switzerland</p> | <p>14 Retsch Technology GmbH
Rheinische Str. 43
42781 Haan, Germany</p> |
| <p>8 Munters Airtreatment Systems
7 Blackstone Road
Huntingdon PE29 6EE,
United Kingdom</p> | <p>3 CiS Forschungsinstitut für Mikrosensorik und Photovoltaik
Konrad-Zuse-Str. 14
99099 Erfurt, Germany</p> | <p>16 Solex Thermal Science Inc.
100, 3595 114 Ave SE
Calgary, AB T2Z 3X2, Canada</p> |
| <p>9 Parsum GmbH
Reichenhainer Str. 34-36
09126 Chemnitz, Germany</p> | <p>5 Mars GmbH
Eitzer Str. 215
27283 Verden, Germany</p> | |

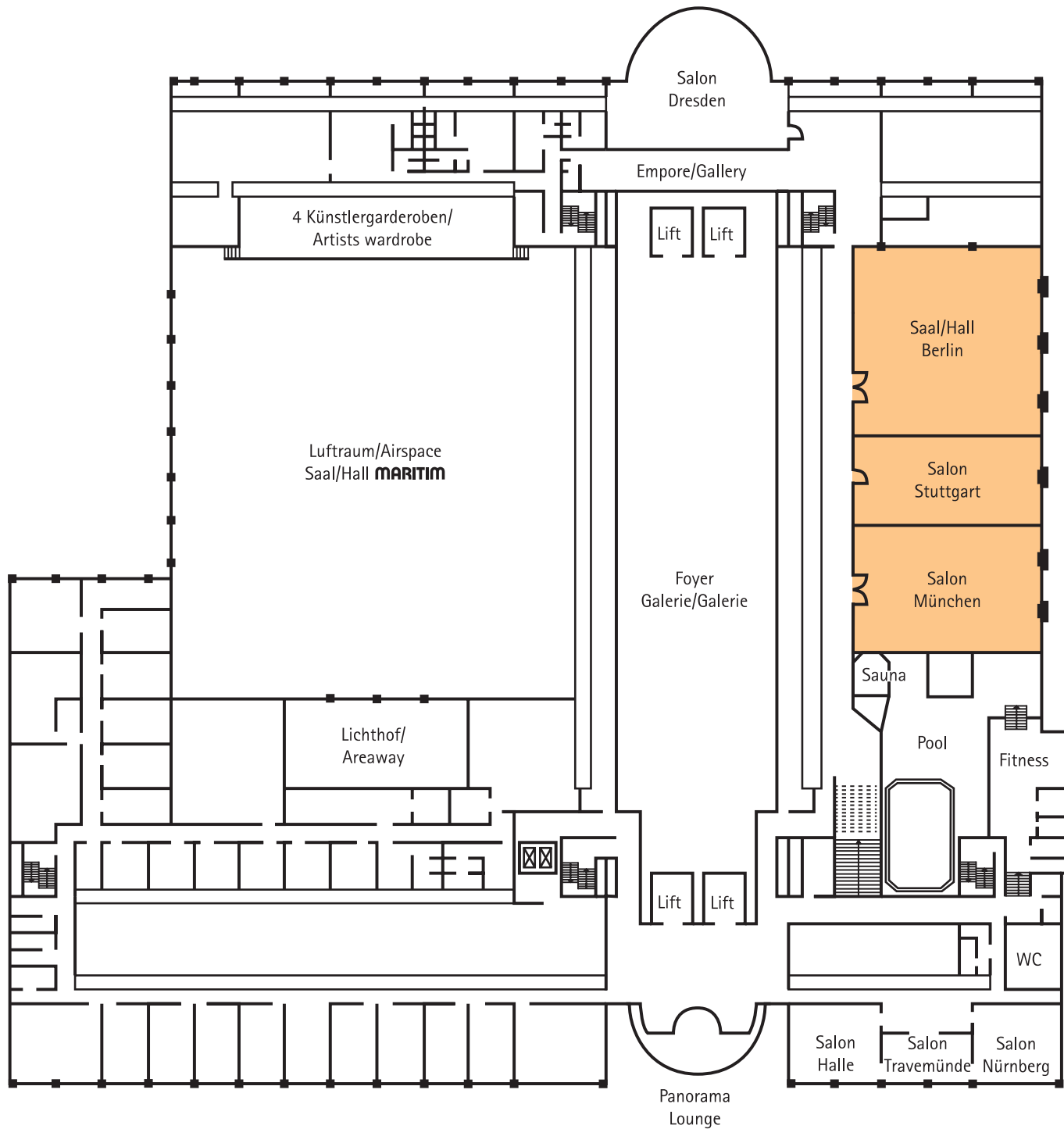
GROUND FLOOR



- Lecture room
- Exhibition and Posters
- Lunch
- Posters and coffee breaks
- Registration
- Exhibitors

HALL PLAN

FIRST FLOOR



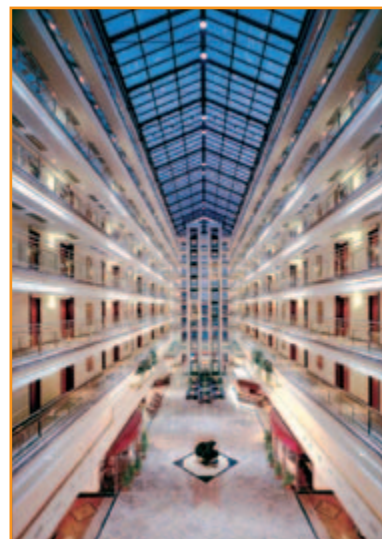
Lecture room

GENERAL INFORMATION

VENUE

MARITIM Hotel Magdeburg
Otto-von-Guericke-Straße 87
39104 Magdeburg

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CONFERENCE ORGANIZER

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SOCIALS

WELCOME RECEPTION

To welcome all participants with drinks and snacks on **Sunday, October 3rd, 2010 from 19:00-21:00**. Please register free of charge.

CULTURAL EVENT

The Cultural Event takes place on **Monday, October 4th, 2010 from 19:30 – 20:30** at the Hall Maritim I.

CONFERENCE DINNER AND AWARD CEREMONY

The Conference Dinner and the Award Ceremony take place on **Wednesday, October 5th, 2010 from 19:30 – 23:00** at the Hall Maritim I. Registration is necessary, costs EUR 40 incl. VAT.

TIMETABLE

Sunday, 3 October 2010		
14:00 – 19:00	Registration	
19:00 – 21:00	Welcome Reception	
Monday, 4 October 2010		
08:50 – 09:30	Opening Ceremony	Hall Maritim I
09:30 – 10:10	KEYNOTE LECTURE 1 <i>Chair: E. Tsotsas</i> A review of modern computational and experimental tools relevant to the field of drying P. Perré	Hall Maritim I
10:10 – 10:40	Coffee Break	
10:40 – 12:40	Oral Sessions A1, B1, C1, D1	
12:40 – 14:00	Lunch	Restaurant "Sinfonie"
14:00 – 16:00	Oral Sessions A2, B2, C2, D2	
16:00 – 16:30	Coffee Break	
16:00 – 18:30	POSTER SESSION 1	Hall Maritim II, Hall Otto-von-Guericke and Foyer
18:00 – 19:30	Meeting of EFCE Working Party on Drying	Room Stuttgart
19:30 – 20:30	Cultural Event	Hall Maritim I
Tuesday, 5 October 2010		
08:10 – 10:10	KEYNOTE LECTURES 2, 3, 4 <i>Chairs: A.S. Mujumdar, M. Schönherr</i>	Hall Maritim I
08:10 – 08:50	Pore network models of drying, contact angle and film flows M. Prat	
08:50 – 09:30	Drying of tropical fruit pulps: Spouted bed process optimization as a function of the pulp composition S.C.S. Rocha, M.F.D. Medeiros; J.S. Souza and O.L.S. Alsina	
09:30 – 10:10	Influence of spray method on product quality and morphology in spray drying P. Walzel	
10:10 – 10:40	Coffee Break	
10:40 – 12:40	Oral Sessions A3, B3, C3, D3	
12:40 – 14:00	Lunch	Restaurant "Sinfonie"
14:00 – 16:00	Oral Sessions A4, B4, C4, D4	
16:00 – 16:30	Coffee Break	
16:00 – 18:30	POSTER SESSION 2	Hall Maritim II, Hall Otto-von-Guericke and Foyer
18:00 – 19:30	Advisory Panel Meeting	Room Stuttgart
19:30 – 23:00	Conference Dinner and Award Ceremony	Hall Maritim II
Wednesday, 6 October 2010		
08:10 – 10:10	KEYNOTE LECTURES 5, 6, 7 <i>Chairs: P. Perré, X.-D. Chen</i>	Hall Maritim I
08:10 – 08:50	Generation of specific product structures during drying of food S. Palzer, C. Dubois and A. Gianfrancesco	
08:50 – 09:30	Drying of porous materials: From a general mathematical model to specific applications G. Chen and W. Wang	
09:30 – 10:10	Winner of Nestlé Award	
10:10 – 10:40	Coffee Break	
10:40 – 12:40	Oral Sessions A5, B5, C5, D5	
12:40 – 14:00	Lunch	Restaurant "Sinfonie"
14:00 – 15:20	Oral Sessions A6, B6, C6, C6	
15:20 – 16:00	OPEN FORUM Presenters: P. Perré, M. Schönherr <i>Chairs: A.S. Mujumdar, E. Tsotsas</i> Perspectives of drying science and technology	Hall Maritim I
16:00 – 16:30	Closing Ceremony	Hall Maritim I

OVERVIEW OF ORAL SESSIONS AND CHAIRS

	Session A	Session B	Session C	Session D
	Hall Maritim I	Room Berlin	Room München	Room Stuttgart

Monday, 4 October 2010				
	Session A1	Session B1	Session C1	Session D1
	Fundamentals, modeling, simulation	Industrial processes and equipment	Physical properties, product quality	Drying of food and agricultural materials
	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>
10:40 – 12:40	J. Andrieu	S. Heinrich	T. van Boxtel	G. Szrednicki
	I. Farkas	L. Mörl	A. Léonard	G. Esper
	Session A2	Session B2	Session C2	Session D2
	Fundamentals, modeling, simulation	Drying of food and agricultural materials	Drying of wood, pulp and paper	Drying of pharmaceuticals and biomaterials
	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>
14:00 – 16:00	T. Metzger	V. Raghavan	M. Douglas	A. Liapis
	Y. Itaya	A.-G. Ghiaus	L. Segura	R. Bruttini

Tuesday, 5 October 2010				
	Session A3	Session B3	Session C3	Session D3
	Fundamentals, modeling, simulation	Drying of food and agricultural materials	Physical properties, product quality	Energy and environmental issues
	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>
10:40 – 12:40	P. Walzel	C. Bonazzi	M. Prat	I. Kemp
	M. Wahlberg	B. Thorat	T. Kudra	S. Rocha
	Session A4	Session B4	Session C4	Session D4
	Fundamentals, modeling, simulation	Drying of food and agricultural materials	Industrial processes and equipment	Special session – WIGRATEC
	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>
14:00 – 16:00	Z. Wu	A. Mulet	I. Zbicinski	M. Peglow
	C. Baker	A. Gianfrancesco	T. Langrish	M. Jacob

Wednesday, 6 October 2010				
	Session A5	Session B5	Session C5	Session D5
	Drying of food and agricultural materials	Particle formulation by drying processes	Energy and environmental issues	Fundamentals, modeling, simulation
	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>
10:40 – 12:40	S. Palzer	R. Kohlus	S. Kowalski	B. Thorat
	G. Raghavan	S. Devahastin	P.-A. Püschner	M. Silva
	Session A6	Session B6	Session C6	Session D6
	Fundamentals, modeling, simulation	Drying of food and agricultural materials	Drying of chemicals and polymers	Particle formulation by drying processes and NaWiTec special session
	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>	<i>Chairs</i>
14:00 – 15:20	A. Levi	A. Barresi	G. Chen	M. Peglow
	L. Arrieche	X.-D. Liu	S. Khalloufi	M. Barrozo

ORAL SESSIONS

MONDAY, 4 OCTOBER 2010

Hall Maritim I			
08:50	Opening Ceremony <i>Chair: E. Tsotsas</i>	08:50	
09:30	KEYNOTE LECTURE 1 A review of modern computational and experimental tools relevant to the field of drying P. Perré	09:30	
10:10	Coffee Break	10:10	
	Hall Maritim I	Room Berlin	
	Session A1	Session B1	
	Fundamentals, modeling, simulation	Industrial processes and equipment	
	<i>Chairs: J. Andrieu, I. Farkas</i>	<i>Chairs: S. Heinrich, L. Mörl</i>	
10:40 A1-1	Fundamentals of modeling and analysis of spray freeze drying: The drying of frozen pharmaceutical and food particles in packed beds A.I. Liapis and R. Bruttini	ACHEMA: A mirror of the progress of drying technology? (Technical) D. Gehrman	10:40 B1-1
11:00 A1-2	Pore network model and simulation of transport process for grain deep bed drying J. Chang, Y.J. Yuan, D.Y. Yang and X.D. Liu	Developing and manufacturing of the BS-miniDRY® (Technical) R. Coldewey	11:00 B1-2
11:20 A1-3	Use of dryer simulators for higher education F. Courtois and G. Trystram	Energetic performance assessment of drying of medicinal and aromatic plants by using a pilot scale gas engine driven heat pump drier Z. Erbay, A. Gungor and A. Hepbasli	11:20 B1-3
11:40 A1-4	Mathematical modeling of drying of nanosuspension droplets in constant-rate period M. Mezhericher, A. Levy and I. Borde	Comparison of energy efficiency of aquatic feed dryers (Technical) R. Houben, M. Geboers and F. Verdonschot	11:40 B1-4
12:00 A1-5	The effective thermal conductivity in a solid containing a liquid mixture: An approach from drying experiments R. Gamero and J. Martinez	Increased productivity in drying whilst reducing energy consumption with desiccant air treatment (Technical) C. Modla and L. Suffolk	12:00 B1-5
12:20 A1-6	Drying myths and misinterpretations I.C. Kemp	Hi-bar steam pressure filtration – a hybrid separation process for mechanical dewatering and thermal drying (Technical) R. Bott, T. Langeloh and E. Ehrfeld	12:20 B1-6
12:40	Lunch	<i>Restaurant "Sinfonie"</i>	12:40
	Session A2	Session B2	
	Fundamentals, modeling, simulation	Drying of food and agricultural materials	
	<i>Chairs: T. Metzger, Y. Itaya</i>	<i>Chairs: V. Raghavan, A.-G. Ghiaus</i>	
14:00 A2-1	Effect of drying-induced strain stress on drying behavior of layered foods with different moisture sorption isotherm Y. Itaya and N. Kobayashi	The application of proteins as spray drying additives to produce orange juice powder S. Wang, E. Konkol and T.A.G. Langrish	14:00 B2-1
14:20 A2-2	Simulation of crack generation during drying G. Musielak and T. Šliwa	Single droplet experimentation on spray drying: Evaporation of sessile droplets deposited on a flat surface J. Perdana, M. Fox, M.A.I. Schutyser, and R.M. Boom	14:20 B2-2
14:40 A2-3	An irregular pore network model for convective drying of aggregates: Capillary and micro-mechanical effects A. Kharaghani, T. Metzger and E. Tsotsas	Enhanced product recovery from drying air in industrial spray drying processes by advanced CIP bag filter technologies (Technical) T. Schrooten, K. Knop, J. Lange, T. Daniel and G.M. Klein	14:40 B2-3
15:00 A2-4	Plasticity in porous materials subjected to drying S.J. Kowalski, J. Banaszak and A. Rybicki	Kinetics of lysine blockage of an infant formula model system at conditions applicable to spray drying I. Schmitz, A. Gianfrancesco, U. Kulozik and P. Foerst	15:00 B2-4
15:20 A2-5	Transient character of drying processes in deformable mixtures Cs. Meszaros, K. Gottschalk, I. Farkas, A. Selakovic and A. Balint	Evaluation of oxidative stability of d-limonene in spray-dried powder by pressure sensing T.L. Neoh, V. Paramita, V. Lauruengtana, N. Verhoeven, T. Furuta and H. Yoshii	15:20 B2-5
15:40 A2-6	Development of a measurement technique for particle shrinkage during convective drying L. Spreutels, F. Debaste, C. Heilporn, R. Legros, J. Chaouki, F. Bertrand and B. Haut	Retention of polyphenols and ascorbic acid in apples: Impact of osmotic dehydration and convective drying E. Devic, S. Guyot, J.D. Daudin and C. Bonazzi	15:40 B2-6
16:00	Coffee Break		16:00
16:00	POSTER SESSION 1 – odd numbers (16:00 – 18:30)	<i>Hall Maritim II, Hall Otto-von-Guericke and Foyer</i>	16:00
18:00	Meeting of EFCE Working Party on Drying	<i>Room Stuttgart</i>	18:00
19:30	Cultural Event (19:30 – 20:30)	<i>Hall Maritim I</i>	19:30

MONDAY, 4 OCTOBER 2010

ORAL SESSIONS

Hall Maritim I			
08:50	Opening Ceremony <i>Chair: E. Tsotsas</i>	08:50	
09:30	KEYNOTE LECTURE 1 A review of modern computational and experimental tools relevant to the field of drying P. Perré	09:30	
10:10	Coffee Break	10:10	
	Room München	Room Stuttgart	
	Session C1	Session D1	
	Physical properties, product quality	Drying of food and agricultural materials	
	<i>Chairs: T. van Boxtel, A. Léonard</i>	<i>Chairs: G. Szrednicki, G. Esper</i>	
10:40 C1-1	Effect of drying on the textural attributes of green pepper and pumpkin R.P.F. Guiné and M.J. Barroca	Garlic drying study by various methods and its impact on allicin retention R.S. Aware and B.N. Thorat	10:40 D1-1
11:00 C1-2	Evaluation of the free volume theory to predict moisture transport and quality changes during broccoli drying X. Jin, R.G.M. van der Sman and A.J.B. van Boxtel	The effects of drying media and temperatures on the quality attributes of germinated brown rice N. Srisang, S. Prachayawarakorn, S. Soponronnarit and W. Varayanond	11:00 D1-2
11:20 C1-3	Drying and characterization of pioneer arboreal seeds L.S. Arrieche, R.M. Picelli and D.J.M. Sartori	Development of fluidized bed drying on inert particles for producing soymilk powder: Performance characteristics and product quality Suherman, M. Djaeni and Widayat	11:20 D1-3
11:40 C1-4	Assessment of the anti-microbial property and stability of dehydrated and fresh garlic B. May, B. Yee and L. Li	Granular biomaterials drying in modified fluidized bed – inert add G. Jinescu, G. Isopencu, M. Mares and C. Cosmin	11:40 D1-4
12:00 C1-5	Antioxidants content and optical properties of salak under different drying and pretreatment conditions S.P. Ong, C.L. Chiang and C.L. Law	Effects of drying and agglomeration on the dissolution of multi-component food powders E. Chavez Montes, N. Dogan, R. Nelissen, A. Marabi, L. Ducasse and G. Ricard	12:00 D1-5
12:20 C1-6	Evaluation of the physical changes related to sorption isotherms of spray dried inulin powder from chicory roots J.T.C.L. Toneli, L.E. Kurozawa, R.A. Oliveira and K.J. Park	Preliminary studies of drying cacao beans in a novel continuous multistage spouted bed system G. Guatemala, L. Virgen, I. Orozco and E. Arriola	12:20 D1-6
12:40	Lunch	<i>Restaurant "Sinfonie"</i>	12:40
	Session C2	Session D2	
	Drying of wood, pulp and paper	Drying of pharmaceuticals and biomaterials	
	<i>Chairs: M. Douglas, L. Segura</i>	<i>Chairs: A. Liapis, R. Bruttini</i>	
14:00 C2-1	Dual-scale model for heat treatment of wood: Evidence of thermal run-away due to the cumulative effect of exothermic reactions R. Rémond, I. Turner and P. Perré	Freeze-drying of an active principle by using organic co-solvent formulations: Influence of freezing conditions and formulation on sublimation kinetics R. Daoussi, E. Bogdani, S. Vessot and J. Andrieu	14:00 D2-1
14:20 C2-2	Cockling of paper - a complex phenomenon. Technical studies how dewatering and drying can affect paper quality (Technical) R. Mayer	Trends in freeze drying of pharmaceuticals (Technical) K. Hudel	14:20 D2-2
14:40 C2-3	Optimizing the benefits of pulse combustion impingement for paper drying F. Ahrens, W. Liewkongsataporn and T. Patterson	The use of design of experiments to study the effect of process parameters on surface topography and size of spray dried d-mannitol E.M. Littringer, A. Mescher, H. Schröttner, P. Walzel and N.A. Urbanetz	14:40 D2-3
15:00 C2-4	Experimental investigation of industrial coating-drying process parameters A. Hallajisani, S.J. Hashemi and W.J. Murray Douglas	Systematic approach towards the preparation of biodegradable haemostatic biosponge from chitosan-gelatin K.P. Chokashi and B.N. Thorat	15:00 D2-4
15:20 C2-5	Equilibrium moisture content of recycled-carton packaging wastes M.S. Bacelos and J.T. Freire	Optimization of the dehydration process of amaranth flour films plasticized with sorbitol D. Tapia-Blacido, P.J.A. Sobral and F.C. Menegalli	15:20 D2-5
15:40 C2-6	Radio frequency/vacuum drying tests for boxed-heart square timber of plantation larch X. Li, R. Gao, T. Gou and L. Zhang	The formation of 6-shogaol in ginger oil under different drying conditions H.H. Chen, T.C. Huang, C.C. Chung and H.Y. Wang	15:40 D2-6
16:00	Coffee Break		16:00
16:00	POSTER SESSION 1 – odd numbers (16:00 – 18:30)	<i>Hall Maritim II, Hall Otto-von-Guericke and Foyer</i>	16:00
18:00	Meeting of EFCE Working Party on Drying	<i>Room Stuttgart</i>	18:00
19:30	Cultural Event (19:30 – 20:30)	<i>Hall Maritim I</i>	19:30

ORAL SESSIONS

TUESDAY, 5 OCTOBER 2010

Hall Maritim I			
<i>Chairs: A.S. Mujumdar, M. Schönherr</i>			
KEYNOTE LECTURES 2, 3, 4			
08:10	Pore network models of drying, contact angle and film flows M. Prat	08:10	
08:50	Drying of tropical fruit pulps: Spouted bed process optimization as a function of the pulp composition S.C.S. Rocha, M.F.D. Medeiros, J.S. Souza and O.L.S. Alsina	08:50	
09:30	Influence of spray method on product quality and morphology in spray drying P. Walzel	09:30	
10:10	Coffee Break	10:10	
Hall Maritim I		Room Berlin	
Session A3		Session B3	
Fundamentals, modeling, simulation		Drying of food and agricultural materials	
<i>Chairs: P. Walzel, M. Wahlberg</i>		<i>Chairs: C. Bonazzi, B. Thorat</i>	
10:40 A3-1	Large eddy simulation of a pilot scale spray dryer utilizing an empirical drying model (Technical) J.D. Kunoy, T. Ullum, J. Sloth and M. Wahlberg	Thin-layer drying of selected varieties of Australian peanuts Shiwei Mao, G. Srzednicki and R.H. Driscoll	10:40 B3-1
11:00 A3-2	Experimental and numerical investigation of pressure-swirl atomizers K. Heinen, P. Renze and M. Schönherr	Experimental study and mathematical modeling of silverside fish convective drying M. Toujani, L. Hassini, S. Azzouz and A. Belghith	11:00 B3-2
11:20 A3-3	Particle deposition criterion in CFD modeling of spray dryers M.W. Woo, L.M. Che, W.R.W. Daud, A.S. Mujumdar and X.D. Chen	Effect of ethanol on the drying kinetics and on the quality of pineapple slices A.M.P. Braga and M.A. Silva	11:20 B3-3
11:40 A3-4	Design of ultrasonic spray-drying by CFD modeling E. Lebedev, A. Voynovskiy, M. Gordienko and N. Menshutina	Determination of drying kinetics and water diffusion coefficients in amorphous-crystalline matrices A. Gianfrancesco, X. Mesnier, L. Forny and S. Palzer	11:40 B3-4
12:00 A3-5	A numerical simulation of gas flow in a cross-flow jetting gypsum board dryer (Technical) J. Wu and X.Y. Li	Factors affecting inactivation of food microorganisms during drying M. Mako, Y. Sakamoto, S. Fujii, N. Yoshimoto, T. Aktas and S. Yamamoto	12:00 B3-5
12:20 A3-6	CFD simulation of capillary condensation during freeze drying of porous material M.H. Ghajar and S.H. Hashemabadi	Time-course estimation of mean surface water activity of food products during drying and storage J.F. Le Page, R. Favier, J.D. Daudin and P.S. Mirade	12:20 B3-6
12:40	Lunch	<i>Restaurant "Sinfonie"</i>	12:40
Session A4		Session B4	
Fundamentals, modeling, simulation		Drying of food and agricultural materials	
<i>Chairs: Z. Wu, C. Baker</i>		<i>Chairs: A. Mulet, A. Gianfrancesco</i>	
14:00 A4-1	Simple, accurate and robust modeling of various systems of drying of foods and biomaterials: Reaction engineering approach A. Putranto, X.D. Chen and P.A. Webley	Factors on infrared drying characteristics of Ebisen (shrimp cracker) Sauce A. Hashimoto, T. Sakatoku, K. Suehara, T. Kameoka and K. Kawamura	14:00 B4-1
14:20 A4-2	Neuro-fuzzy modeling of dryer performance H.M.S. Lababidi and C.G.J. Baker	Drying of papaya seeds using infrared radiation M.M. Prado, L.G. Marques and D.J.M. Sartori	14:20 B4-2
14:40 A4-3	Prediction of the drying rate in the superheated steam drying process R. Adamski and Z. Pakowski	Effect of food ingredient on microwave freeze drying of instant vegetable soup R. Wang, M. Zhang, A.S. Mujumdar, J. Sun and Z.X. Gu	14:40 B4-3
15:00 A4-4	Thermal-membrane drying: A novel drying concept assessed by mathematical modeling Z.H. Wu, Z.Y. Li, Y.J. Xie, L. Wu and A.S. Mujumdar	Modeling of ultrasonically assisted convective drying of eggplant C. Ortuño, J.V. Garcia-Perez, J.A. Carcel, A. Femenia and A. Mulet	15:00 B4-4
15:20 A4-5	Dimensionless formulation of convective heat transfer in fry-drying process of sewage sludge M.H. Romdhana, D. Lecomte and B. Ladevie	Comparative tests for energetic analysis of apple, potato and onion drying in a microwave field Z. Kurják, A. Barhács and J. Beke	15:20 B4-5
15:40 A4-6	Pressure drop and fluid flow behavior of spray dryer pressure nozzle V. Pistre, F. Ducept, S. Mezdour, M. Sionneau and G. Cuvelier	Effect of microwave drying on drying characteristics, colour and antioxidant activities of Pelargonium graveolens N. Boudhrioua, N. Bahloul, M. Ketata, E. Ammar and N. Kechaou	15:40 B4-6
16:00	Coffee Break		16:00
16:00	POSTER SESSION 2 – even numbers (16:00 – 18:30)	<i>Hall Maritim II, Hall Otto-von-Guericke and Foyer</i>	16:00
18:00	Advisory Panel Meeting	<i>Room Stuttgart</i>	18:00
19:30	Conference Dinner and Award Ceremony (19:30 – 23:00)	<i>Hall Maritim I</i>	19:30

TUESDAY, 5 OCTOBER 2010

ORAL SESSIONS

Hall Maritim I			
Chairs: A.S. Mujumdar, M. Schönherr			
KEYNOTE LECTURES 2, 3, 4			
08:10	Pore network models of drying, contact angle and film flows M. Prat	08:10	
08:50	Drying of tropical fruit pulps: Spouted bed process optimization as a function of the pulp composition S.C.S. Rocha, M.F.D. Medeiros, J.S. Souza and O.L.S. Alsina	08:50	
09:30	Influence of spray method on product quality and morphology in spray drying P. Walzel	09:30	
10:10	Coffee Break	10:10	
	Room München	Room Stuttgart	
	Session C3	Session D3	
	Physical properties, product quality	Energy and environmental issues	
Chairs: M. Prat, T. Kudra		Chairs: I. Kemp, S. Rocha	
10:40 C3-1	Influence of drying conditions on the structure and properties of supported metal catalysts V. Novak, A. Kogelbauer, F. Stepanek, P. Koci, M. Marek and M. Kubicek	Multi-effect lignite super-heated steam drying – an innovative way for energy conservation and emission reduction in electric power industry (Technical) S. Li, Y.C. Shi, B. Jiang, X.H. Dong, H. Meng, G.L. Liang and X.Y. Yang	10:40 D3-1
11:00 C3-2	Low-temperature vacuum drying of natural Gardenia yellow pigments W. Liu, L.X. Huang and A.S. Mujumdar	Innovative energy-efficient biomass drying based on self-heat recuperation technology M. Aziz, C. Fushimi, Y. Kansha, K. Mochidzuki, S. Kaneko, A. Tsutsumi, K. Matsumoto, T. Hashimoto, N. Kawamoto, K. Oura, K. Yokohama, Y. Yamaguchi and M. Kinoshita	11:00 D3-2
11:20 C3-3	Challenges in drying of pharmaceutical products (Technical) A. Schreiner	Market analysis of drying technologies in Denmark and the potential for energy recovery of drying systems (Technical) E.N. Jensen, P. Schneider and L. Reinholdt	11:20 D3-3
11:40 C3-4	Caking behaviour of spray-dried powders – using scanning probe microscopy to study nanoscale surface properties D.C. Prime, M.C. Leaper, V. Leach, J.R. Jones, D.J. Richardson, C.D. Rielly and A.G.F. Stapley	Drying of organic residues in the new „Rolling Bed Dryer“ (Technical) M. Trojosky, H. Weiß and D. Mössinger	11:40 D3-4
12:00 C3-5	Physicochemical properties of microencapsulated egg powders produced by spray drying B. Koç, M. Koç, Ö. Güngör, U. Güney, M. Sakin-Yilmazer, F. Kaymak-Ertekin, G. Susyal and N. Bağdatlioğlu	Impact of storage duration on the emissions of ammonia and volatile organic compounds during convective drying of urban residual sludges L. Fraikin, B. Herbreteau, X. Chaucherie, F. Nicol, T. Salmon, M. Crine and A. Leonard	12:00 D3-5
12:20 C3-6	Influence of drying conditions on processing properties of ceramic spray granules S. Eckhard, M. Fries, S.Höhn and M. Nebelung	Investigations on atmospheric CO ₂ impacts of the energetic use of biomass by Global Carbon Cycle models D.U. Ringer	12:20 D3-6
12:40	Lunch	Restaurant "Sinfonie"	12:40
	Session C4	Session D4	
	Industrial processes and equipment	Special session – WIGRATEC	
Chairs: I. Zbicinski, T. Langrish		Chairs: M. Peglow, M. Jacob	
14:00 C4-1	Spray drier with bi-valent air-distribution system for optimized production performance and powder output M. Buergermeister	Fluidized bed technology – Recent achievement and research activities S. Heinrich	14:00 D4-1
14:20 C4-2	Nano spray drying – submicron particles of minimal sample quantities at highest yield (Technical) C. Arpagaus, M. Meuri and N. Schafroth	Fluidized bed granulation of microorganism M. Wassermann, C. Cordes, S. Weinholz, M. Peglow and W. Pergande	14:20 D4-2
14:40 C4-3	Modeling of airflow in an industrial counter-current spray drying tower M. Podyma, I. Zbicinski, P. Wawrzyniak, Z. Bartczak and J. Rabaeva	Fluidized bed drying - Simulation and inline-measurement M. Henneberg, R. Hampel, M. Dervedde and M. Peglow	14:40 D4-3
15:00 C4-4	Drying of renewable raw materials in superheated water vapor L. Krell, G. Caspers, H. Haida, W. Behns and L. Mörl	Inline particle sizing for process control of fluid bed and high shear mixing processes M. Köhler	15:00 D4-4
15:20 C4-5	Explosion protection measures in dedusting technology (Technical) W.D. Marbach	Superheated steam extraction of essential oils in fluidized bed H. Haida, W. Behns, L. Mörl, I. Schellenberg, A.-C. Bansleben and W. Pergande	15:20 D4-5
15:40 C4-6	Infrared radiation and atmospheric freeze drying of Ocimum basilicum Linnaeus O. Alves-Filho and S. Goncharova-Alves	Continuous fluidized bed granulation processes M. Jacob	15:40 D4-6
16:00	Coffee Break		16:00
16:00	POSTER SESSION 2 – even numbers (16:00 – 18:30)	Hall Maritim II, Hall Otto-von-Guericke and Foyer	16:00
18:00	Advisory Panel Meeting	Room Stuttgart	18:00
19:30	Conference Dinner and Award Ceremony (19:30 – 23:00)	Hall Maritim I	19:30

ORAL SESSIONS

WEDNESDAY, 6 OCTOBER 2010

		Hall Maritim I		
		<i>Chairs: P. Perré, X.-D. Chen</i>		
		KEYNOTE LECTURES 5, 6, 7		
08:10	Generation of specific product structures during drying of food S. Palzer, C. Dubois and A. Gianfrancesco			08:10
08:50	Drying of porous materials: From a general mathematical model to specific applications G. Chen and W. Wang			08:50
09:30	Winner of Nestlé Award			09:30
10:10	Coffee Break			10:10
		Hall Maritim I	Room Berlin	
		Session A5	Session B5	
		Drying of food and agricultural materials	Particle formulation by drying processes	
		<i>Chairs: S. Palzer, G. Raghavan</i>	<i>Chairs: R. Kohlus, S. Devahastin</i>	
10:40 A5-1	Effect of drying temperature and pre-treatment on color and textural changes during convective air drying of <i>Boletus edulis</i> mushroom D. Argyropoulos, M.T. Khan and J. Mueller		Impact of particle structure on the moisture sorption of a spray dried product R. Kohlus, S. Jesinger, H.D. Isengard and G. Merkh	10:40 B5-1
11:00 A5-2	Electroporation of apple cubes affecting drying rate, water and fructose distribution during hot air drying H. Jaeger, C. Zwiens, M. Regier and D. Knorr		Moisture distribution in fluidized beds with liquid injection L. Fries, M. Dosta, S. Antonyuk, S. Heinrich and S. Palzer	11:00 B5-2
11:20 A5-3	Nectarines dehydration (<i>Prunus persica</i> var. nectarine) in concentrated osmotic agents combined with hot air drying M.M. Rodríguez, R.H. Mascheroni and A.M. Pagano		Application of a novel spouted bed process for the drying and coating of silica aerogel microspheres for advanced drug delivery S. Antonyuk, S. Heinrich, M. Alnaief and I. Smirnova	11:20 B5-3
11:40 A5-4	Drying of pineapple by microwave-vacuum with osmotic pretreatment J.L.G. Correa, Y. Garipey, S.R.S. Dev and G.S.V. Raghavan.		Comparative evaluation of hot air and superheated steam impinging stream drying of a high-moisture particulate material K. Choicharoen, S. Devahastin and S. Soponronnarit	11:40 B5-4
12:00 A5-5	Combined effects of osmotic dehydration and convective air drying on Kaddid meats: kinetics and quality M. Chabbouh, W. Hajji, S.B.H. Ahmed, A. Farhat, S. Bellagha and A. Sahli		Optimisation of drying processes in the pharmaceutical industry (Technical) H.E. Zimmer and C. Döring	12:00 B5-5
12:20 A5-6	Genetic algorithm optimization of drying conditions of kiwifruit M. Fathi, M. Mohebbi and S.M.A. Razavi		Productivity improvement of carrot freeze drying by combination with microwave vacuum drying M. Rother, P. Steimle, V. Gaukel and H.P. Schuchmann	12:20 B5-6
12:40	Lunch		<i>Restaurant "Sinfonie"</i>	12:40
		Session A6	Session B6	
		Fundamentals, modeling, simulation	Drying of food and agricultural materials	
		<i>Chairs: A. Levi, L. Arrieche</i>	<i>Chairs: A. Barresi, X.-D. Liu</i>	
14:00 A4-1	Numerical study of water desorption process from polystyrene cation resin CG-8 M. Stakić and A. Nikolić		Innovation perspective in bulk freeze-drying of food A.A. Barresi, R. Pisano and D. Fissore	14:00 B6-1
14:20 A4-2	CFD-simulation of the dynamic behavior of a continuous fluidized bed plant M. Jacob		Investigation on a new instant coffee production process: Vacuum belt dryer K. Burmester, H. Fehr and R. Eggers	14:20 B6-2
14:40 A4-3	Some generalized and particular issues on modeling of complex drying processes based on temperature-moisture relationships V.I. Kononov, N.Z. Gatapova and T. Kudra		The effect of enzymatic treatment on microstructure of dried vegetable tissue D. Konopacka, B. Dyki and A. Seroczyńska	14:40 B6-3
15:00 A4-4	Drying experiments in a hydrophobic model porous medium in the presence of a dissolved salt H. Eloukabi, N. Sghaier, M. Prat and S. Ben Nasrallah		Optimization of drying-tempering periods in a paddy rice dryer M. Golmohammadi, M. Rajabi-Hamane, and S.J. Hashemi	15:00 B6-4
		Hall Maritim I		
		<i>Chairs: A.S. Mujumdar, E. Tsotsas</i>		
15:20	OPEN FORUM Presenters: P. Perré, M. Schönherr Perspectives of drying science and technology			15:20
16:00	Closing Ceremony (16:00 – 16:30)			16:00

WEDNESDAY, 6 OCTOBER 2010

ORAL SESSIONS

Hall Maritim I			
Chairs: P. Perré, X.-D. Chen			
KEYNOTE LECTURES 5, 6, 7			
08:10	Generation of specific product structures during drying of food S. Palzer, C. Dubois and A. Gianfrancesco	08:10	
08:50	Drying of porous materials: From a general mathematical model to specific applications G. Chen and W. Wang	08:50	
09:30	Winner of Nestlé Award	09:30	
10:10	Coffee Break	10:10	
	Room München	Room Stuttgart	
	Session C5	Session D5	
	Energy and environmental issues	Fundamentals, modeling, simulation	
Chairs: S. Kowalski, P.-A. Püschner		Chairs: B. Thorat, M. Silva	
10:40 C5-1	Consumption of energy and quality aspect by intermittent drying S. Kowalski and A. Pawłowski	Mathematical modeling of moisture profiles in cheese drying A. Castell-Palou, M.R. González-Centeno, S. Adrover, R. González and S. Simal	10:40 D5-1
11:00 C5-2	Increased efficiency for drying and conditioning grains and oilseeds (Technical) W. Türk and F. Salaria	Application of the theory of Markov chains to model the moisture content distribution over a rotating porous cylinder V. Mizonov, V. Zaitsev, V. Volynskii and V. Leznov	11:00 D5-2
11:20 C5-3	Energy saving potential of spray dryers, the benchmark method (Technical) V. Backx, F. Pennartz and B. de Jong	Modelling of heat and mass transfer during drying of an ecological building material A. Zaknounge, P. Glouannec, P. Salagnac and P. Le Bideau	11:20 D5-3
11:40 C5-4	Sustainable drying in the dairy industry (Technical) N. Hotrum, M. Fox and P. de Jong	A mass conservative mesoscopic drying model E. Carr, I. Turner and P. Perré	11:40 D5-4
12:00 C5-5	The design of cyclonic preheaters in suspended cement kilns A. Brems, J. Baeyens, C.W. Chan and J.P.K. Seville	2D glass micromodel experiments of fluid distribution and liquid transport in softwood isothermal drying L.A. Segura and C.A. Oyarzún	12:00 D5-5
12:20 C5-6	A critical assessment of industrial coal drying technologies S. Jangam, J.M. Kuma and A.S. Mujumdar	Drying in porous media: Equilibrium and non-equilibrium approaches for composting processes A. Pujol, S. Pommier, G. Debenest, M. Quintard and D. Chenu	12:20 D5-6
12:40	Lunch	Restaurant "Sinfonie"	12:40
	Session C6	Session D6	
	Drying of chemicals and polymers	Particle formulation by drying processes and NaWiTec special session	
Chairs: G. Chen, S. Khalloufi		Chairs: M. Peglow, M. Barrozo	
14:00 C6-1	Preparation of carbon cryogel microhoneycomb by ice-templating and activation H. Tamon, M. Sakamoto, T. Suzuki and N. Sano	Stochastic modeling of fluidized bed granulation M. Dervedde, M. Peglow and E. Tsotsas	14:00 D6-1
14:20 C6-2	Simulations and mathematical representation of the spring-back effect of gel matrixes during drying processes S. Khalloufi, C. Almeida-Rivera, J. Janssen, M. van der Vaart and P. Bongers	Particle residence times in fluidized bed granulation M. Börner, M. Peglow and E. Tsotsas	14:20 D6-2
14:40 C6-3	Effect of temperature on the drying of fine particles in a draft-tube conical spouted bed H. Altzibar, G. Lopez, M. Olazar and J. Bilbao	Modeling the growth kinetics of the fluidized bed spray granulation Z. Li, M. Kind and G. Gruenewald	14:40 D6-3
15:00 C6-4	In situ biomimetic synthesis to produce hydroxyapatite-polyvinyl alcohol biocomposites: Precipitation and spray drying methods T. Basargan, N. Erdol-Aydin and G. Nasun-Saygili	Online control of the particle coating process in fluidized bed utilizing bed pressure fluctuations C.A.M. Silva, M.R. Parise, F.V. Silva and O.P. Taranto	15:00 D6-4
Hall Maritim I			
Chairs: A.S. Mujumdar, E. Tsotsas			
15:20	OPEN FORUM Presenters: P. Perré, M. Schönherr Perspectives of drying science and technology		15:20
16:00	Closing Ceremony (16:00 – 16:30)		16:00

POSTER SESSIONS 1 AND 2

Hall Maritim II, Hall Otto-von-Guericke and Foyer

All posters may be presented throughout IDS2010, i.e. from October 3 – 6, 2010.

The posters should preferably be put up **before Monday, October 4, 2010, 10:30 a.m. and are welcome to stay until Wednesday, October 6, 2010 at 4:00 p.m.**

Please note that there will be two posters sessions.

Authors of **posters with odd numbers** are expected to present their poster during **Poster Session 1** on Monday, October 4, from 4:00 until 6:30 p.m.

Authors of **posters with even numbers** are expected to present their poster during **Poster Session 2** on Tuesday, October 5, from 4:00 until 6:30 p.m.

- P-001 Theoretical models of drying kinetics of disperse materials
S.P. Rudobashta and G.A. Zueva
- P-002 Experimental and theoretical investigation of drying effects on fluidized bed wet agglomeration
K. Terrazas-Velarde, M. Peglow and E. Tsotsas
- P-003 Advances in discrete modeling of heat transfer in contact drying equipment
F. Weigler, M. Peglow and E. Tsotsas
- P-004 Drying of a single liquid droplet in humid air
M. Levy and A. Levy
- P-005 Highly deformable product convective drying simulation by a 2D hydro-mechanical model
L. Hassini, R. Peczalski, S. Azzouz and A. Belghith
- P-006 Formation of hollow particles by drying of silica-water suspension
E. Maevski, A. Levy and I. Borde
- P-007 Drying kinetics and drying models of fruit that underwent continuous heat pump drying and hybrid drying methods
C.H. Chong, A. Figiel and C.L. Law
- P-008 Production of narrow distributed particles by laminar rotary atomization – The influence of the ambient gas on the breakup of stretched liquid threads
A. Mescher and P. Walzel
- P-009 Influence of water-cement ratio on diffusion coefficient of cement mortars at different moisture contents
H. Garbalińska, S.J. Kowalski and M. Staszak
- P-010 Modeling of drying during ideal shrinkage
J. Brac, W. Jomaa, C. Pommier and L. Rouleau
- P-011 Gas-admixing foam spray drying kinetics
J. Rabaeva, C. Strumillo and M. Piatkowski
- P-012 Numerical simulation of particle trajectories and velocity in a pilot plant spray dryer with a two-fluid nozzle
A.R. Sayyari, O.R. Roustapour, A.R. Tahavvor and A. Afsari
- P-013 Computational fluid dynamic (CFD) simulation of swirl in a spray dryer
O.R. Roustapour and M. Hosseinalipour
- P-014 Analysis of experimental results using the drying model in a box-type heat pump dryer
K.H. Lee, J.R. Kim and S.R. Lee
- P-015 Micro-scale model for drying of highly porous particle aggregates
C. Kirsch, T. Metzger and E. Tsotsas
- P-016 Extraction of effective parameters for continuous drying model from discrete pore network model
N. Vorhauer, T. Metzger and E. Tsotsas
- P-017 Modeling and energy efficiency optimization of a low temperature adsorption based food dryer
J.C. Atuonwu, G. van Straten, H.C. van Deventer and A.J.B. van Boxtel
- P-018 The use of fractional-in-space diffusion equations for describing microscale diffusion in porous media
I. Turner, M. Ilic and P. Perré
- P-019 Application of the theory of neural networks to modeling the process heat treatment of loose materials in the dryer drum
V. Volynsky, V. Zaitsev and V. Mizonov
- P-020 Numerical simulation of a Helmholtz-type pulse combustor
C.W. Feng, X.H. Fu, X.D. Liu, F. Cui, W.B. Wang, M.G. Wu and H.C. Niu
- P-021 On the modeling of convective drying tests on soil samples in non-isothermal conditions
P. Gerard, A. Léonard, R. Charlier and F. Collin

- P-022 Modeling plain vacuum drying by considering a dynamic capillary pressure
S. Sandoval-Torres, J. Rodríguez-Ramírez, L.L. Méndez-Lagunas and R. Rivera-Tinoco
- P-023 Porous structure design of banana foam to resist moisture adsorption using a 2D stochastic pore network: Experiment and simulation
P. Prakotmak, S. Soponronnarit and S. Prachayawarakorn
- P-024 Industrial drying of wooden pallets – CFD analysis of air flow
A.G. Ghiaus, A. Filios, D.P. Margaris and D. Tzempelikos
- P-025 Some generalized and particular issues on the modeling of complex drying processes based on temperature-moisture relationships. Part 1. General statements
V.I. Konovalov
- P-026 Rate of the drying shrinkage of the hydraulic concretes
A. Brahma
- P-027 Simulation of continuous fluidized bed dryers within the flowsheet simulation program SolidSim
I. Alaathar, E.U. Hartge, S. Heinrich and J. Werther
- P-028 Application of population balance equations for continuous fluidized bed drying
U. Cunäus, M. Peglow and E. Tsotsas
- P-029 Discrete element modeling of the fluidized bed granulation process by coupling of different simulation systems
M. Dosta, S. Antonyuk, L. Fries and S. Heinrich
- P-030 Impinging air drying of delicate foams
J.D. McCarty
- P-031 Experimental and theoretical investigations on fluidized bed freeze drying
L. Mörl, W. Behns, H. Haida, S. Schlüsselburg, S. Henschke and M. Jacob
- P-032 Micromodel experiments of pure ice sublimation in capillary porous media
L.A. Segura and C.A. Oyarzún
- P-033 A comparative study on numerical simulation in vacuum-FIR radiation drying and oven drying of litchi fruit
F.Y. Xu, C. Zhen and C.Y. Li
- P-034 Mathematical modeling of plug flow fluidized bed dryer using batch drying kinetic data of DWGS
R.G. Bait and B.N. Thorat
- P-035 Modeling of spray drying processes using meshfree simulation methods
W. Säckel, F. Keller and U. Nieken
- P-036 Analysis of heat transfer during convective drying of cubic particles of papaya
P.S.S. Porto, E.P. Muniz, R.D. Loss, I.P. Santos and J.R.C. Proveti
- P-037 Convection drying kinetics of Asian white radish (*Raphanus sativus* L.) slices
F. Khanzadeh, H. Tavakolipour and F. Rahmani
- P-038 A Lattice Boltzmann simulation of drying liquid film on patterned substrates with different wettability
R.J. Li and Y. Morozumi
- P-039 Improved identification of drying models with sequential optimal design of experiments
D. Goujot, X. Meyer and F. Courtois
- P-040 Simulation of a fluidized bed spray granulation pilot plant GF/ProCell 25 with the flowsheet simulation software SolidSim
J. Neuwirth, S. Heinrich, M. Dosta, M. Jacob, C. Reimers and M. Pogodda
- P-041 Optimization of fluidized drying in horizontal fluidized bed for the first period of drying
A. Poświata
- P-042 Investigation into first and second order change of state for milk ingredients
C. Köhler, G.J. Esper and A. Knoblauch
- P-043 Modeling of dehydration kinetics of European plums (*Prunus domestica* L.) by combined methods
M.M. Rodriguez, L.M. Gori, R.H. Mascheroni and A.M. Pagano
- P-044 Non-intrusive detection of moisture content in a fluidized bed using acoustic emission
F. Karimi, R. Sotudeh-Gharebagh, N. Mostoufi and M. Abbasi
- P-045 On-line product quality measurement and analysis in a spray drying process
J. Stawczyk and A. Lewandowski
- P-046 Effect of moisture profile on the tableting behavior of Enalapril Maleate granules using inline near infrared spectroscopy
A. Hartung, M. Knöll, U. Schmidt and P. Langguth
- P-047 Novel control technique for the drying process of pasta
F. Groß, R. Benning, U. Bindrich, K. Franke, V. Heinz and A. Delgado

POSTER SESSIONS 1 AND 2

Hall Maritim II, Hall Otto-von-Guericke and Foyer

- P-048 Particle agglomeration in spray drying: Role of product properties related to stickiness
A. Gianfrancesco, C. Turchiuli, D. Flick, S. Palzer and E. Dumoulin
- P-049 On the use of a MPC algorithm for the in-line optimization of a pharmaceutical freeze-drying process
R. Pisano, D. Fissore and A.A. Barresi
- P-050 Kinetics of microwave drying under low pressure
A. Kieca and G. Musielak
- P-051 Analysis of foam-structure and viscosity effects with focus on vacuum drying application
R. Kohlus and M. Sramek
- P-052 Control of moisture evaporation in microwave drying
Z. Li, G.S.V. Raghavan and V. Orsat
- P-053 Extrudability of cassava flour, water and by-products of renewable fuels industry to produce bioplastic
J.A. Ruano Ortiz, C.Y. Takeiti, C.W.P. Carvalho, J.L. Ascheri, T.L. Azevedo and F.S. Barbosa
- P-054 Model-based measurement and control of granulation processes
A. Bück, M. Peglow, E. Tsotsas, M. Mangold and A. Kienle
- P-055 Investigation of process dynamics in fluidized bed granulation
T. Hoffmann, M. Peglow and E. Tsotsas
- P-056 Fibre-optical inline measurements of particle size distributions in fluidized bed processes
C. Fischer, A. Bück, M. Peglow and E. Tsotsas
- P-057 Observation and analysis of mass transfer during drying of ceramic mass samples
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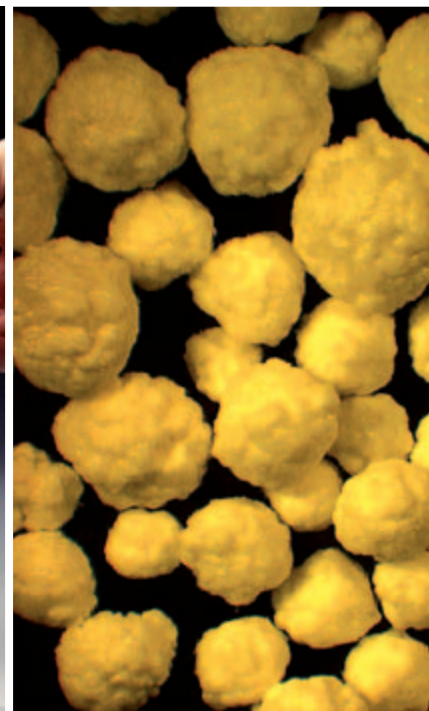
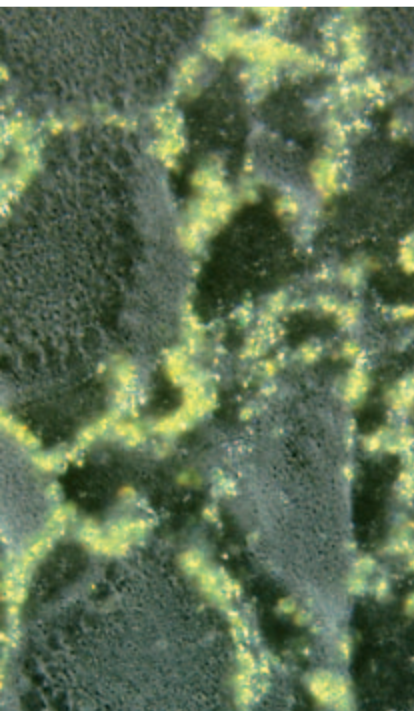
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