



DECHEMA

Gesellschaft für Chemische Technik
und Biotechnologie e.V.

PROGRAMME

29 May – 3 June 2016

Graf-Zeppelin-Haus · Friedrichshafen/Lake Constance
Germany

FOA12

12th International Conference on the Fundamentals of Adsorption

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SCOPE / CONTENTS

SCOPE

The International Conference on the Fundamentals of Adsorption (FOA) is the premier international conference in the field of adsorption. The FOA series of conferences started in 1983 and a conference in the series has been held since then every three years. The conference is organised under the auspices of the International Adsorption Society (IAS) and takes place in an alternating manner in the US, the Asian/Pacific area and Europe. The conference is attended by researchers in adsorption and related fields from throughout the world. Most of the attendees are chemical engineers but there are always also many chemists, physicists and members of other disciplines present. Moreover the level of industrial participation is high. Thus, the conference is an excellent forum for the exchange of ideas and information between scientists and industrial practitioners.

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Please note: Status of the programme is 10 Mai 2016, programme is subject to alterations. Submission title and authors information as given by the submitter. No proof by DECHEMA.

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SOCIAL EVENTS

Sunday, 29 May 2016

18:15 – 19:30

Welcome Reception

After the invited evening lecture of Prof. H. Maier an informal gathering to welcome the participants will take place. Drinks and snacks will be served.

Monday, 30 May 2016

19:00 – 21:00

Japanese Night

The Japanese Delegation invites the participants to join an informal Japanese Reception: Japanese drinks and snacks will be served.

Wednesday, 1 June 2016

12:15 – 23:00

Excursion to Schloss Neuschwanstein

The Castle of Neuschwanstein is known all over the world as a symbol of idealised romantic architecture and for the tragic story of its owner.

This excursion will bring you along the Lake Constance, through the beautiful Allgäu region up to the Neuschwanstein Castle. After a guided tour through the Neuschwanstein Castle you will have the chance to enjoy a traditional light meal "Vesper" and some drinks at the Schlossbrauhaus Schwangau. We will return around 23:00 in the evening to the conference venue or to the city centre of Friedrichshafen.

The excursion with the light meal is included in the conference registration fee. Your excursion ticket (handed out while check-in) has to be presented to the tour guide while entering your bus. Misplaced or lost tickets cannot be replaced.

Meeting point: 12:15 at the main entrance of the Graf-Zeppelin-Haus



Thursday, 2 June 2016

18:45 – 23:30

Conference Dinner

Join us for a fun evening at the FOA12 Conference Dinner at the Dornier Museum in Friedrichshafen. The Dornier Museum is a museum for aviation & aerospace. Anyone can be a pioneer – that's certainly one message visitors to the Dornier Museum Friedrichshafen will take home with them.

The Conference Dinner is included in the conference registration fee. We will offer a bus shuttle from the conference venue to the Dornier Museum and back.

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PROGRAMME AT A GLANCE

PROGRAMME AT A GLANCE

Sunday, 29 May 2016

Monday, 30 May 2016

Tuesday, 31 May 2016

Wednesday, 1 June 2016

Thursday, 2 June 2016

Friday, 3 June 2016

	Hugo-Eckener-Saal		
8:45	WELCOME AND OPENING Welcome and Opening Remarks		
9:00	INVITED KEYNOTE LECTURE Monson/USA		
9:45	PLENARY LECTURE Fuchs/F		
10:10	PLENARY LECTURE Tanaka/J		
10:35	Coffee Break		
	Hugo-Eckener-Saal	Ludwig-Dürr-Saal	Alfred-Colsman-Saal
	Fundamentals I	Materials I	Biotechnology Applications
11:05	Tavares/BR	Zhao/CN	Schwaminger/D
11:25	Valiullin/D	Kim/ROK	Gurikov/D
11:45	Brandani/UK	G. Li/AUS	Darmograi/F
12:05	Cousin-Saint-Remi/B	de Azevedo/BR	Zobel/D
12:25	Qamar/D	Lee/ROK	Martínez Crisanchó/D
12:45	Lunch		
	Hugo-Eckener-Saal		
13:45	PLENARY LECTURE Siderius/USA		
14:10	Break for Changing the Lecture Hall		
	Hugo-Eckener-Saal	Ludwig-Dürr-Saal	Alfred-Colsman-Saal
	Fundamentals II	Materials II	Energy Applications I
14:20	Sliwiska-Bartkowiak/PL	Snurr/USA	Schäfer/D
14:40	Gor/USA	Kondo/J	Obliger/USA
15:00	Calero/E	Xia/CN	P. Li/CN
15:20	Vanson/F	Bhatt/SAR	Iruetagoiena Ferrer/UK
15:40	Coffee Break		
	Fundamentals III	Materials III	Energy Applications II
16:10	Nomura/J	He/AUS	Urita/J
16:30	Billemont/B	Hu/HK	Menshchikov/RUS
16:50	Ortner/CH	Chen/USA	Tezel/CDN
17:10	Hiratsuka/J	Liu/CN	Ernst/D
17:30	Poster Discussion (17:30 – 19:00)		
18:15	Welcome Reception (18:15 – 19:30)		
19:00	Japanese Night (19:00 – 21:00)		

	Ludwig-Dürr-Saal		
7:45	60-MINUTES TUTORIAL Porous Materials Zoology: A dive into the world of COFs, CTFs, KITs, MAFs, MOFs, PIZOFs, ZIFs.... Kaskel/D		
	Hugo-Eckener-Saal		
9:00	INVITED KEYNOTE LECTURE Ryoo/ROK		
9:45	PLENARY LECTURE Stegmaier/D		
10:10	PLENARY LECTURE Mazzotti/CH		
10:35	Coffee Break		
	Hugo-Eckener-Saal	Ludwig-Dürr-Saal	Alfred-Colsman-Saal
	Fundamentals IV	Materials IV	Liquid and Gas Adsorption I
11:05	Ohlin/S	Centi/UK	Águeda/E
11:25	Stoessel/D	Jentys/D	Mutavdzin/D
11:45	Rigby/UK	Barrett/USA	Hosseinzadeh Hejazi/CDN
12:05	Suchorski/A	Pimentel/USA	Stehmann/D
12:25	Kärger/D	Jorge/UK	Schäef/F
12:45	Lunch		
	Hugo-Eckener-Saal		
13:45	PLENARY LECTURE Mays/UK		
14:10	Break for Changing the Lecture Hall		
	Hugo-Eckener-Saal	Ludwig-Dürr-Saal	Alfred-Colsman-Saal
	Fundamentals V	Materials V	Liquid and Gas Adsorption II
14:20	Chanut/F	Changbum/KR	Tchernook/D
14:40	Ravikovitch/USA	Ania/E	Kanoh/J
15:00	Coasne/F	Hartmann/D	Möbius/D
15:20	Neimark/USA	Nouali/F	Oh/USA
15:40	Coffee Break		
	Fundamentals VI	Materials VI	Environmental Applications
16:10	Pirngruber/F	Jones/USA	Grande/N
16:30	De Weireld/B	Denayer/B	Rezaei/USA
16:50	Mota/P	Z. Li/CN	Farooq/SGP
17:10	Vuong/F	Nishihara/J	Kohen/USA
17:30	Group Photo		
18:00	Poster Discussion (18:00 – 19:30)		

	Ludwig-Dürr-Saal		
7:45	60-MINUTES TUTORIAL Recent advances in statistical thermodynamics and molecular simulation of adsorption Neimark/USA		
	Hugo-Eckener-Saal		
9:00	PLENARY LECTURE Tao/CN		
9:25	PLENARY LECTURE Lee/ROK		
9:50	Coffee Break		
	Hugo-Eckener-Saal	Ludwig-Dürr-Saal	Alfred-Colsman-Saal
	Fundamentals VII	Environmental Applications	Characterisation I
10:20	Garénaux/B	Bandosz/USA	Wöllner/D
10:40	Lin/D	Ren/SGP	Bon/D
11:00	Ziółkowska/PL	Nikačević/SRB	Gu/AUS
11:20	Luna-Triguero/E	Ebner/USA	Hefti/CH
11:40	Break for Changing the Lecture Hall		
	Hugo-Eckener-Saal		
11:50	PLENARY LECTURE Bathen/D		
12:15	Excursion Schloss Neuschwanstein (12:15 – 23:00)		

	Ludwig-Dürr-Saal		
7:45	60-MINUTES TUTORIAL Adsorption processes Rajendran/CDN & Farooq/SGP		
	Hugo-Eckener-Saal		
9:00	INVITED KEYNOTE LECTURE Antos/PL		
9:45	PLENARY LECTURE Nicoud/F		
10:10	PLENARY LECTURE Do/AUS		
10:35	Coffee Break		
	Hugo-Eckener-Saal	Ludwig-Dürr-Saal	Alfred-Colsman-Saal
	PSA & SMB I	Molecular Modeling I	Characterisation II
11:05	Wang/CN	Shang/AUS	Walton/USA
11:25	Ritter/USA	Pillai/P	Pini/UK
11:45	Leinekugel-le-Cocq/F	Campbell/UK	Clet/F
12:05	Zhang/CN	Bonnaud/J	Hobday/UK
12:25	Ferreira/P	Tallarek/D	Hähnel/D
12:45	Lunch		
	Hugo-Eckener-Saal		
13:45	PLENARY LECTURE Reichenauer/D		
14:10	Break for Changing the Lecture Hall		
	Hugo-Eckener-Saal	Ludwig-Dürr-Saal	Alfred-Colsman-Saal
	PSA & SMB II	Molecular Modeling II	Characterisation III
14:20	Vargas Schmitz/D	Coudert/F	Bläker/D
14:40	Moon/ROK	Wenzel/D	Richardson/UK
15:00	Rajendran/CDN	Maurin/F	Eic/CDN
15:20	R. Ribeiro/P	Schneider/D	Fieback, Dreisbach/D
15:40	Coffee Break		
	PSA & SMB III	Molecular Modeling III	Characterisation IV
16:10	Bhatt/B	Kaneko/J	Thommes/USA
16:30	May/AUS	Kühl/D	Chmelik/D
16:50	A. Ribeiro/P	Zhong/CN	Laroche/F
	Hugo-Eckener-Saal		
17:15	IAS General Assembly		
18:45	Departure for Conference Dinner (18:45 – 23:30)		

	Ludwig-Dürr-Saal		
8:15	60-MINUTES TUTORIAL Structural characterization of nanoporous materials by physical adsorption Thommes/USA		
	Hugo-Eckener-Saal		
	Priceholder Session		
9:30	Lecture of the recipient of the "Ph.D. thesis Award"		
9:50	Lecture of the recipient of the "Senior Scientist Award"		
	Industrial Session		
10:10	Reitmeier/D		
10:30	Ruch/CH		
10:50	Coffee Break		
11:20	Keil/D		
11:40	Purcell/USA		
12:00	Shigaki/J		
12:20	Sa Gomes/D		
12:40	Closing Remarks		
12:50	End of the conference		

(Programme subject to change)

HIGHLIGHTS

INVITED KEYNOTE SPEAKERS

Sunday, 29 May 2016

17:30 **“Important for the War”: Chemists during the “Third Reich”**
Prof. H. Maier, University of Bochum/D

Monday, 30 May 2016

09:00 **Adsorption in mesoporous materials: thermodynamics, dynamics and hysteresis**
P.A. Monson, University of Massachusetts, Amherst, MA/USA

Tuesday, 31 May 2016

09:00 **New generations of nanoporous materials**
R. Ryoo, Korea Advanced Institute of Science and Technology, Daejeon/ROK

Thursday, 2 June 2016

09:00 **Forced modulation of operating conditions in chromatographic separation: potential and pitfalls**
D. Antos, Rzeszow University of Technology/PL

TUTORIALS

As a new feature of this conference series we will offer at FOA12 four tutorials (60 minutes each).

Tuesday, 31 May 2016

07:45 – 08:45 **Porous Materials Zoology: A dive into the world of COFs, CTFs, KITs, MAFs, MOFs, PIZOFs, ZIFs....**
S. Kaskel, TU Dresden, Anorganische Chemie I, Dresden/D

Wednesday, 1 June 2016

07:45 – 08:45 **Recent advances in statistical thermodynamics and molecular simulation of adsorption**
A. Neimark, Rutgers University, NJ/USA

Thursday, 2 June 2016

07:45 – 08:45 **Adsorption processes**
A. Rajendran, University of Alberta/CDN; S. Farooq, National University of Singapore/SGP

Friday, 3 June 2016

08:15 – 09:15 **Structural characterization of nanoporous materials by physical adsorption**
M. Thommes, Quantchrome Corporation, Boynton Beach, FL/USA

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16:30 Registration / Check-in (16:30 – 19:30)

Hugo-Eckener-Saal

17:30 **INVITED EVENING LECTURE**
“Important for the War”: Chemists during the “Third Reich”
 Prof. H. Maier, University of Bochum/D

18:15 Welcome Reception with Drinks and Snacks (end: approx. 19:30)

8:45 **WELCOME AND OPENING**

A. Seidel-Morgenstern, Max Planck Institute for Dynamics of Complex Technical Systems; Otto von Guericke University, Institute of Process Engineering, Magdeburg/D
 A. Brand, Lord Mayor of Friedrichshafen/D

*Chair: T. Bandoz, The City Collge of New York/USA*9:00 **INVITED KEYNOTE LECTURE**

KL 1 **Adsorption in mesoporous materials: thermodynamics, dynamics and hysteresis**
 P.A. Monson, University of Massachusetts, Amherst, MA/USA

9:45 **PLENARY LECTURES**

PL 1 **Mechanical impact of adsorption in compliant nanoporous materials**

F. Mouhat¹; D. Bousquet²; A. Boutin²; F. Coudert¹; A. Fuchs¹; ¹ CNRS, Chimie ParisTech, Paris/F; ² CNRS, École normale supérieure, Paris/F

10:10 **Computational study of gate adsorption behavior on metal-organic frameworks with the aid of X-ray structural analysis**

PL 2 S. Hiraide¹; H. Tanaka¹; M. Miyahara¹; ¹ Kyoto University, Nishikyo, Kyoto/J

10:35 COFFEE BREAK

Hugo-Eckener-Saal

Fundamentals of Adsorption I*Chair: M. Mazzotti, ETH Zurich/CH*11:05 **Analysis of application of the Poisson-Boltzmann equation in a protein adsorption system**

L 1.1 A. Barreto Jr¹; M. Santos²; M. Gama³; F. Tavares¹; ¹ Escola de Química/UF RJ, Queimados/BR; ² PEQ/COPPE/UF RJ, Rio de Janeiro/BR; ³ EQ/UF RJ, Rio de Janeiro/BR

11:25 **Sorption dynamics in porous materials with hierarchical pore structures**

L 1.2 D. Schneider¹; J. Kärger¹; R. Valiullin¹; ¹ University of Leipzig/D

11:45 **Kinetics of CO₂ chemisorption on amine supported mesoporous carbons studied by the zero length column technique**

L 1.3 A. Gibson¹; A. Gromov¹; E. Campbell¹; D. Friedrich¹; S. Brandani¹; ¹ The University of Edinburgh/UK

12:05 **The surface barrier phenomenon leading to the apparent intracrystalline pore-network diffusion pattern**

L 1.4 J. Cousin-Saint-Remi¹; A. Lauere²; G. Baron¹; C. Chmelik¹; J. Denayer¹; J. Kärger²; ¹ Vrije Universiteit Brussel (VUB)/B; ² Universität Leipzig/D

12:25 **Using the method of moments to analyze thermal effects in liquid chromatography**

L 1.5 S. Qamar¹; A. Seidel-Morgenstern¹; ¹ Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg/D

12:45 LUNCH

Chair: M. Miyahara, Kyoto University/J

Hugo-Eckener-Saal

13:45 **PLENARY LECTURE**

PL 3 **The NIST/ARPA-E database of novel and emerging adsorbent materials: an online infrastructure for cataloging and curating adsorbent materials, data, and properties**

D. Siderius¹; V. Shen¹; R. Johnson III¹; R. van Zee¹; ¹ National Institute of Standards and Technology, Gaithersburg, MD/USA

14:10 BREAK FOR CHANGING THE LECTURE HALL

Hugo-Eckener-Saal

Fundamentals of Adsorption II*Chair: M. Miyahara, Kyoto University/J*14:20 **Water confined in nanopores; the novel ice structures**

L 1.6 M. Sliwinska-Bartkowiak¹; K. Domin¹; K. Chan³; M. Jazdzewska²; K. Gubbins⁴; Y. Long⁵; ¹ Adam Mickiewicz University, Poznan/PL; ³ Hong Kong University of Science and Technology, Hong Kong/HK; ⁴ North Carolina State University, Raleigh, NC/USA; ⁵ National University of Singapore, Singapore/SGP

14:40 **Relation between pore size and the compressibility of confined argon: a Monte Carlo simulation study**

L 1.7 G. Gor¹; D. Siderius²; C. Rasmussen³; V. Shen²; N. Bernstein¹; ¹ Naval Research Laboratory, Washington, D.C./USA; ² NIST, Gaithersburg, MD/USA; ³ DuPont, Wilmington, DE/USA

15:00 **Rationalization of adsorption of water and small alcohols in Cu-BTC in terms of copper-binding and hydrogen bonding**

L 1.8 S. Calero¹; P. Gómez-Álvarez¹; ¹ University Pablo de Olavide, Sevilla/E

15:20 **Effect of hierarchical porous network on transport and adsorption**

L 1.9 J. Vanson¹; M. Klotz²; F. Coudert³; A. Boutin⁴; ¹ ENS Paris/Saint-Gobain CREE, Paris/F; ² Saint-Gobain CREE, Cavillon/F; ³ Chimie ParisTech, Paris/F; ⁴ ENS Paris, Paris/F

15:40 COFFEE BREAK

Fundamentals of Adsorption III*Chair: B. Coasne, Massachusetts Institute of Technology, Cambridge/USA*16:10 **In Situ Control of H₂O Adsorptivity Based on Pore-Deformation in Elastic Microporous Material**

L 1.10 K. Nomura¹; H. Nishihara²; H. Tanaka²; M. Miyahara²; T. Kyotani¹; ¹ Tohoku University, Sendai/J; ² Kyoto University, Kyoto/J

16:30 **Metal-Organic Frameworks Selection for Separation Process by Co-adsorption measurement and thermodynamics model**

L 1.11 P. Normand¹; N. Heymans¹; P. Billemon¹; G. De Weireld¹; ¹ Université de Mons (UMONS), Mons/B

16:50 **Experimental and Theoretical Analysis of a chromatographic process in the presence of Liquid-Liquid Phase Separation**

L 1.12 F. Ortner¹; M. Mazzotti¹; ¹ ETH Zurich/CH

17:10 **Mechanism of H₁ Type Adsorption Hysteresis in Ordered Mesoporous Silica Materials**

L 1.13 T. Hiratsuka¹; H. Tanaka¹; M. Miyahara¹; ¹ Kyoto University, Kyoto/J

17:30 **POSTER DISCUSSION (until 19:00)**19:00 **Japanese Night (19:00 – 21:00)**

8:45 **WELCOME AND OPENING**
A. Seidel-Morgenstern, Max Planck Institute for Dynamics of Complex Technical Systems; Otto von Guericke University, Institute of Process Engineering, Magdeburg/D
A. Brand, Lord Mayer of Friedrichshafen/D
Chair: T. Bandoz, The City Collge of New York/USA

9:00 **INVITED KEYNOTE LECTURE**
KL 1 **Adsorption in mesoporous materials: thermodynamics, dynamics and hysteresis**
P.A. Monson, University of Massachusetts, Amherst, MA/USA

9:45 **PLENARY LECTURES**
PL 1 **Mechanical impact of adsorption in compliant nanoporous materials**
F. Mouhat¹; D. Bousquet²; A. Boutin²; F. Coudert¹; A. Fuchs¹; ¹ CNRS, Chimie ParisTech, Paris/F; ² CNRS, École normale supérieure, Paris/F

10:10 **Computational study of gate adsorption behavior on metal-organic frameworks with the aid of X-ray structural analysis**
PL 2 S. Hiraide¹; H. Tanaka¹; M. Miyahara¹; ¹ Kyoto University, Nishikyo, Kyoto/J

10:35 COFFEE BREAK

Ludwig-Dürr-Saal

Adsorbent Materials I

Chair: S. Kaskel, TU Dresden/D

11:05 **High-capacity adsorption of vapor-phase VOCs (benzene and toluene) on N-doped carbon microsphere under ultra-low pressure**
L 2.1 Z. Zhao¹; ¹ Guangxi University, Nanning/CN

11:25 **Ordered microporous carbons of fully graphenic framework from zeolite templates**
L 2.2 K. Kim¹; T. Lee²; Y. Kwon²; R. Ryoo³; ¹ IBS, Yuseong-gu/ROK; ² KAIST, Daejeon/ROK; ³ IBS/KAIST, Daejeon/ROK

11:45 **Ionic liquidic zeolites for methane capture from low grade sources**
L 2.3 G. Li¹; J. Shang²; Q. Gu³; T. Saleman¹; J. Liu⁴; P. Webley²; E. May¹; ¹ The University of Western Australia, Crawley/AUS; ² The University of Melbourne, Victoria/AUS; ³ Australian Synchrotron, Victoria/AUS; ⁴ Monash University, Victoria/AUS

12:05 **PEI-modified pillared adsorbent from water-treatment solid wastes applied to CO₂/N₂ separation**
L 2.4 E. Vilarrasa-Garcia¹; J. Cecilia¹; J. Jiménez-Jiménez²; C. Cavalcante Jr.¹; D. Silva de Azevedo¹; E. Rodríguez-Castellón²; ¹ Universidade Federal do Ceará, Fortaleza/BR; ² Universidad de Málaga, Málaga/E

12:25 **CO₂ adsorption on poly(vinylidene fluoride)-based porous carbons**
L 2.5 S. Hong¹; K. Lee¹; ¹ Korea University, Seoul/ROK

12:45 LUNCH

Hugo-Eckener-Saal

M. Miyahara, Kyoto University/J

13:45 **PLENARY LECTURE**
PL 3 **The NIST/ARPA-E database of novel and emerging adsorbent materials: an online infrastructure for cataloging and curating adsorbent materials, data, and properties**
D. Siderius¹; V. Shen¹; R. Johnson III¹; R. van Zee¹; ¹ National Institute of Standards and Technology, Gaithersburg, MD/USA

14:10 BREAK FOR CHANGING THE LECTURE HALL

Ludwig-Dürr-Saal

Adsorbent Materials II

Chair: M. Eic, University of New Brunswick/CND

14:20 **Computationally-guided discovery of new metal-organic frameworks for adsorption applications**
L 2.6 D. Gomez-Gualdrón¹; Y. Chung¹; Y. Colón¹; P. Li¹; T. Wang¹; X. Zhang²; J. Zhang²; O. Farha¹; J. Hupp¹; R. Snurr¹; ¹ Northwestern University, Evanston, IL/USA; ² University of Nebraska, Lincoln, NE/USA

14:40 **Molecular accommodation in latent pores of a one-dimensional copper-based metal-organic framework**
L 2.7 A. Kondo¹; T. Suzuki²; R. Kotani²; K. Maeda¹; ¹ Tokyo University of Agriculture and Technology, Naka-cho, Koganei, Tokyo/J

15:00 **Effects of temperature on adsorption mechanism and adsorption selectivity of C₃H₆ and C₃H₈ on MOF-74(Ni)**
L 2.8 Q. Xia¹; ¹ South China University of Technology, Guangzhou/CN

15:20 **Highly stable tunable rare earth fcu-MOF platform: access to adsorption kinetics and molecular exclusion driven gas/vapor separations via pore size contraction**
L 2.9 Y. Belmabkhout¹; D.-X. Xue¹; A.H. Assen¹; H. Jiang¹; K. Adil¹; P.M. Bhatt¹; M. Eddaoudi¹; ¹ King Abdullah University of Science and Technology (KAUST), Thuwal/SAR

15:40 COFFEE BREAK

Adsorbent Materials III

Chair: J. Denayer, Vrije Universiteit Brussel/B

16:10 **Converting 3D Rigid Metal-Organic Frameworks (MOFs) to 2D Flexible Networks via Ligand Exchange for Enhanced Gas Separation**
L 2.10 Y. He¹; J. Shang¹; R. Singh¹; P. Xiao¹; P. Webley¹; Q. Gu²; J. Li³; G. Li⁴; ¹ The University of Melbourne, Melbourne/AUS; ² Australian Synchrotron, Clayton/AUS; ³ Monash University, Clayton/AUS; ⁴ The University of Western Australia, Perth/AUS

16:30 **Synthesis, sulfonic acid functionalization and catalytic application of metal-organic frameworks**
L 2.11 X. Hu¹; K. Ma¹; ¹ Hong Kong University of Science and Technology, Kowloon/HK

16:50 **Hybrid Polymer-Metal Organic Framework Fibers for Mercaptan Removal from Natural Gas**
L 2.12 G. Chen¹; W. Koros¹; C. Jones¹; ¹ Georgia Institute of Technology, Atlanta/USA

17:10 **A Reversible Crystallinity-Preserving Phase Transition in a new Metal-Organic Framework**
L 2.13 D. Liu¹; T. Liu²; Y. Chen²; L. Zou²; D. Feng²; K. Wang²; Q. Zhang²; S. Yuan²; C. Zhong¹; H. Zhou²; ¹ Beijing University of Chemical Technology, Beijing/CN; ² Texas A&M University, College Station/USA

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19:00 Japanese Night (19:00 – 21:00)

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10:10 **Computational study of gate adsorption behavior on metal-organic frameworks with the aid of X-ray structural analysis**
PL 2 S. Hiraide¹; H. Tanaka¹; M. Miyahara¹; ¹ Kyoto University, Nishikyo, Kyoto/J

10:35 COFFEE BREAK

Alfred-Colsman-Saal

Biotechnology Applications

Chair: D. Antos, Rzeszow University of Technology/PL

11:05 **Bio-Nano Interactions on Iron Oxide Nanoparticle Surfaces**
L 3.1 S. Schwaminger¹; S. Blank-Shim¹; P. Fraga Garcia¹; S. Berensmeier¹; ¹ Technische Universität München, Garching/D

11:25 **Adsorptive precipitation of organic solids in aerogels: way towards stable amorphous drugs**
L 3.2 P. Gurikov¹; I. Smirnova¹; ¹ Technische Universität Hamburg-Harburg, Hamburg/D

11:45 **Adsorption of benzene metabolite on hybrid porous materials functionalized with polypeptides**
L 3.3 G. Darmograj¹; D. Bergé-Lefranc²; V. Wernert³; R. Denoyel³; F. Chaspoul²; K. Mabrouk⁴; G. Bonzi⁴; T. Phan⁴; M. Rollet⁴; D. Gimes⁴; E. Bloch²; V. Hornebecq²; ¹ Aix-Marseille Université, Marseille/F; ² Aix Marseille Université, CNRS, IMBE UMR 7263, Marseille/F; ³ Aix Marseille Université, CNRS, MADIREL UMR 7246, Marseille/F; ⁴ Aix Marseille Université, CNRS, ICR UMR 7273, Marseille/F

12:05 **Integrated Counter Current Chromatography (iCCC) – a fully integrated multimodal chromatography process**
L 3.4 S. Zobel¹; J. Strube¹; ¹ TU Clausthal, Institut für Thermische Verfahrens- und Prozesstechnik, Clausthal-Zellerfeld/D

12:25 **The role of adsorption in the downstream processing of specialty biochemicals**
L 3.5 C. Martínez Cristancho¹; J. Haberland²; W. Blümke¹; ¹ Evonik Technology & Infrastructure GmbH, Hanau/D; ² Evonik Technology & Infrastructure GmbH, Marl/D

12:45 LUNCH

Hugo-Eckener-Saal

Chair: M. Miyahara, Kyoto University/J

13:45 **PLENARY LECTURE**
PL 3 **The NIST/ARPA-E database of novel and emerging adsorbent materials: an online infrastructure for cataloging and curating adsorbent materials, data, and properties**
D. Siderius¹; V. Shen¹; R. Johnson III¹; R. van Zee¹; ¹ National Institute of Standards and Technology, Gaithersburg, MD/USA

14:10 BREAK FOR CHANGING THE LECTURE HALL

Alfred-Colsman-Saal

Chair: H. Tezel, University of Ottawa/CND

Energy Applications I

14:20 **Modelling and simulation of the heat and mass transfer in an adsorber of a closed low-pressure adsorption system for thermal energy storage**
L 4.1 M. Schäfer¹; A. Reinert¹; A. Thess¹; ¹ University of Stuttgart, Institute of Energy Storage, Stuttgart/D

14:40 **Adsorption effects on transport of hydrocarbon mixtures in disordered nanoporous media**
L 4.2 A. Obliger¹; R. Pellenq¹; F. Ulm¹; B. Coasne¹; ¹ Massachusetts Institute of Technology, Cambridge/USA

15:00 **Separation of methane and nitrogen by the modified VPSA process with CO₂ rinse using activated carbon beads**
L 4.3 Y. Yang¹; Y. Wu¹; H. Liu²; J. Wang¹; P. Li¹; J. Yu¹; ¹ East China University of Science and Technology, Shanghai/CN

15:20 **Clean H₂ Production by Sorption Enhanced Methanol to Shift:**
L 4.4 D. Iruretagoyena Ferrer¹; K. Hellgardt¹; D. Chadwick¹; ¹ Imperial College London/UK

15:40 COFFEE BREAK

Energy Applications II

Chair: A. Rajendran, University of Alberta/CND

16:10 **Effective porous structures of carbon electrodes for improving EDL capacitance**
L 4.5 K. Urita¹; K. Fujita¹; K. Horio²; Y. Konishi²; M. Yoshida²; I. Moriguchi¹; ¹ Nagasaki University, Nagasaki/J; ² Microtrac BEL, Osaka/J

16:30 **Microporous carbon adsorbents for the technology of adsorbed natural gas**
L 4.6 I. Menshchikov¹; A. Fomkin¹; A. Shkolin¹; E. Strizhenov¹; E. Khosina¹; ¹ A.N. Frumkin Institute of Physical Chemistry and Electrochemistry of the Russian Academy of Sciences, Moscow/RUS

16:50 **Impact of activated carbon adsorbent on the performance of silicon membranes for butanol pervaporation separation for improving biobutanol production**
L 4.7 H. Azimi¹; J. Thibault¹; F.H. Tezel¹; ¹ University of Ottawa, Ottawa/CND

17:10 **From design to application: HKUST-1 coated 3D substrates for use in thermally-driven heat transformation**
L 4.8 S. Ernst¹; F. Jeremias¹; H. Bart²; S. Henninger¹; ¹ Fraunhofer ISE, Freiburg/D; ² TU Kaiserslautern, Lehrstuhl für Thermische Verfahrenstechnik, Kaiserslautern/D

17:30 POSTER DISCUSSION (until 19:00)

19:00 Japanese Night (19:00 – 21:00)

7:45 – 8:45	TUTORIAL Porous Materials Zoology: A dive into the world of COFs, CTFs, KITs, MAFs, MOFs, PIZOFs, ZIFs.... S. Kaskel, TU Dresden, Anorganische Chemie I, Dresden/D	Ludwig-Dürr-Saal
		Hugo-Eckener-Saal
	<i>Chair: P.A. Webley, The University of Melbourne/AUS</i>	
9:00 KL 2	INVITED KEYNOTE LECTURE New generations of nanoporous materials R. Ryoo, Korea Advanced Institute of Science and Technology, Daejeon/ROK	
9:45 PL 4	PLENARY LECTURES Nonideal gas simulation of pressure swing adsorption processes M. Stegmaier ¹ ; ¹ Linde AG, Engineering Division, Pullach/D	
10:10 PL 5	Optimal design and operation of temperature swing adsorption cycles for CO ₂ capture L. Joss ¹ ; S. Zanco ¹ ; D. Marx ¹ ; M. Hefti ¹ ; M. Gazzani ¹ ; M. Mazzotti ¹ ; ¹ ETH Zürich, Zürich/CH	
10:35	COFFEE BREAK	Hugo-Eckener-Saal
	Fundamentals of Adsorption IV <i>Chair: A.V. Neimark, Rutgers University, Piscataway/USA</i>	
11:05 L 1.14	Ternary adsorption of methane, water and carbon dioxide in zeolite Na-ZSM-5 studied using in-situ ATR-FTIR spectroscopy L. Ohlin ¹ ; A. Farzaneh ¹ ; A. Holmgren ¹ ; J. Hedlund ¹ ; M. Grahn ¹ ; ¹ Luleå University of Technology, Luleå/S	
11:25 L 1.15	Elucidating the Sorption Mechanism of Organic Vapors in Disordered Mesoporous Silica by In-Situ SAXS Analysis Using Contrast Matching B. Smarsly ¹ ; D. Stoeckel ¹ ; D. Wallacher ² ; G. Zickler ³ ; ¹ Justus-Liebig University Giessen/D; ² Helmholtz-Center Berlin/D; ³ Montan-University, Leoben/A	
11:45 L 1.16	NMR Imaging of Low Pressure, Gas-phase Uptake in Packed Beds using Hyperpolarised Xenon-129 G. Pavlovskaya ¹ ; T. Meersmann ¹ ; S. Rigby ¹ ; ¹ University of Nottingham/UK	
12:05 L 1.17	Probing Adsorption on a Nanoscale: Field Desorption Micro-Spectroscopy Y. Suchorski ¹ ; ¹ Vienna University of Technology, Vienna/A	
12:25 L 1.18	Recording guest profiles during transient adsorption: Novel insights by microimaging J. Kärger ¹ ; ¹ University of Leipzig/D	
12:45	LUNCH	Hugo-Eckener-Saal
	<i>Chair: S. Calero; University Pablo de Olavide, Seville/E</i>	
13:45 PL 6	PLENARY LECTURE Convergence of Theory and Simulations in the Analysis of Experimental Adsorption Isotherms in Nanoporous Carbons T. Mays ¹ ; T. Düren ¹ ; V. Ting ¹ ; ¹ University of Bath, BATH/UK	
14:10	BREAK FOR CHANGING THE LECTURE HALL	Hugo-Eckener-Saal
	Fundamentals of Adsorption V <i>Chair: S. Calero; University Pablo de Olavide, Seville/E</i>	
14:20 L 1.19	Can compressing adsorbents lead to increased separation properties? Gas adsorption on mechanically constrained soft porous crystal MOFs N. Chanut ¹ ; S. Bourrelly ¹ ; R. Denoyel ¹ ; B. Kuchta ¹ ; P. Llewellyn ¹ ; ¹ Aix Marseille University, CNRS, MADIREL UMR 7246, Marseille/F	
14:40 L 1.20	Adsorption and Phase Transitions in Flexible Frameworks P. Ravikovitch ¹ ; Y. Du ¹ ; B. Wooller ¹ ; M. Nines ¹ ; P. Kortunov ¹ ; C. Paur ¹ ; J. Zengelt ¹ ; S. Weston ¹ ; ¹ ExxonMobil Research and Engineering, Annandale/USA	
15:00 L 1.21	Adsorption and Transport in Hierarchical Microporous/Mesoporous Materials A. Galarneau ¹ ; F. Fajula ¹ ; F. Guenneau ² ; A. Gedeon ² ; B. Coasne ³ ; ¹ CNRS, Montpellier/F; ² UPMC - CNRS, Paris/F; ³ CNRS, Grenoble/F	
15:20 L 1.22	Polymer adsorption on surfaces and nanoporous substrates A. Neimark ¹ ; ¹ Rutgers University, Piscataway/USA	
15:40	COFFEE BREAK	
	Fundamentals of Adsorption VI <i>Chair: S. Brandani, University of Edinburgh/UK</i>	
16:10 L 1.23	How to sketch a portrait of the ideal physisorbent material for CO ₂ capture by Pressure Swing Adsorption G. Pirngruber ¹ ; J. Perez-Pellitero ¹ ; E. Garcia ¹ ; C. Jallut ² ; ¹ IFP Energies nouvelles, Solaize/F; ² Université Lyon 1, Laboratoire d'Automatique et de Génie des Procédés, UMR 5007, CNRS-ESCEP, Lyon/F	
16:30 L 1.24	Highly selective CO ₂ capture by Small Pore MOFs assessed by real coadsorption measurements and molecular simulations P. Normand ¹ ; G. De Weireld ¹ ; G. Maurin ² ; ¹ Université de Mons/B; ² Institut Charles Gerhardt, Université de Montpellier/F	
16:50 L 1.25	Evaluation of the Optimum Activated Carbon Properties for a Sorption Cooler using a Combined Simulation and Experimental Methodology J. Mota ¹ ; R. Ribeiro ¹ ; I. Esteves ¹ ; F. Teixeira ¹ ; D. Martins ² ; M. Branco ² ; T. Tirolen ³ ; J. Barreto ⁴ ; G. Bonfait ⁴ ; ¹ LAQV, REQUIMTE / Faculty of Science and Technology, Universidade NOVA de Lisboa, Caparica/P; ² Active Space Technologies S.A., Coimbra/P; ³ European Space Agency, AG Noordwijk/NL; ⁴ LIBPhys-UNL / Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, Caparica/P	
17:10 L 1.26	The role of static diffusion during storage in the immediate breakthrough of activated carbon bed cyclically exposed to vapour F. Vuong ¹ ; S. Marsteau ² ; C. Vallières ¹ ; ¹ LRGP - CNRS - UL, Nancy/F; ² INRS, Vandoeuvre les Nancy/F	
17:30	GROUP PHOTO & POSTER DISCUSSION (until 19:30)	

7:45 – 8:45	TUTORIAL Porous Materials Zoology: A dive into the world of COFs, CTFs, KITs, MAFs, MOFs, PIZOFs, ZIFs.... S. Kaskel, TU Dresden, Anorganische Chemie I, Dresden/D	Ludwig-Dürr-Saal
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	<i>Chair: P.A. Webley, The University of Melbourne/AUS</i>	
9:00 KL 2	INVITED KEYNOTE LECTURE New generations of nanoporous materials R. Ryoo, Korea Advanced Institute of Science and Technology, Daejeon/ROK	
9:45 PL 4	PLENARY LECTURES Nonideal gas simulation of pressure swing adsorption processes M. Stegmaier ¹ ; ¹ Linde AG, Engineering Division, Pullach/D	
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10:35	COFFEE BREAK	Ludwig-Dürr-Saal
	Adsorbent Materials IV <i>Chair: M. Hartmann; Universität Erlangen-Nürnberg, Erlangen/D</i>	
11:05 L 2.14	Unravelling the synthesis of bioinspired mesoporous silica materials by molecular dynamics simulations A. Centi ¹ ; M. Jorge ¹ ; ¹ University of Strathclyde, Glasgow/UK	
11:25 L 2.15	Functional and structural influences on CO ₂ adsorption capacities of silica-based sorbents in the presence of H ₂ O A. Jentys ¹ ; E. Berger ¹ ; L. Johannes ¹ ; M. Hahn ¹ ; ¹ TU München, Garching/D	
11:45 L 2.16	Pore Size Modification of Zeolite A by Partial Lithium Exchange P. Barrett ¹ ; N. Stephenson ¹ ; S. Pontonio ¹ ; H. Du ¹ ; M. Freiert ¹ ; J. Wager ¹ ; ¹ Praxair Inc., Tonawanda/USA	
12:05 L 2.17	Adsorption and Diffusion of C ₁ -C ₄ in ZIF-8 at Sub-Ambient Conditions B. Pimentel ¹ ; R. Lively ¹ ; ¹ Georgia Institute of Technology, Atlanta/USA	
12:25 L 2.18	Modelling the Formation of MCM-41 Materials Through a Multi-scale Simulation Approach G. Pérez-Sánchez ² ; S. Chien ² ; J. Gomes ¹ ; N. Cordeiro ³ ; S. Auerbach ² ; P. Monson ² ; M. Jorge ⁴ ; ¹ University of Aveiro/P; ² University of Massachusetts, Amherst/USA; ³ University of Porto/P; ⁴ University of Strathclyde, Glasgow/UK	
12:45	LUNCH	Hugo-Eckener-Saal
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14:10	BREAK FOR CHANGING THE LECTURE HALL	Ludwig-Dürr-Saal
	Adsorbent Materials V <i>Chair: Y. Tao; Haixi Institutes, Chinese Academy of Sciences, Fuzhou/CN</i>	
14:20 L 2.19	Mesoporous materials with microporous zeolite framework for adsorption studies R. Ryoo ¹ ; J. Changbum ² ; ¹ IBS/KAIST, Daejeon/ROK; ² IBS, Daejeon/ROK	
14:40 L 2.20	Unravelling the structural deformation of ZIF-8 combining high resolution adsorption and in-situ synchrotron X-ray diffraction upon gas adsorption and release C. Ania ¹ ; A. Gomis-Berenguer ² ; J. Parra ² ; A. Muñoz-Noval ³ ; E. Salas ³ ; J. Montejo-Bernardo ⁴ ; S. Garcia-Granda ⁴ ; G. Castro ³ ; ¹ Instituto nacional del carbón (INCAR-CSIC), Oviedo/E; ² INCAR-CSIC, Oviedo/E; ³ ESRF, Grenoble/F; ⁴ Univ. Oviedo/E	
15:00 L 2.21	Adsorptive Separation of Olefin/Paraffin Mixtures with ZIFs M. Hovestadt ¹ ; U. Böhme ¹ ; C. Paula ¹ ; M. Hartmann ¹ ; ¹ Universität Erlangen-Nürnberg, Erlangen/D	
15:20 L 2.22	VOCs adsorption by a new generation of nanoporous material. H. Nouaili ¹ ; I. Kaban ² ; B. Lebeau ² ; J. Bellat ³ ; J. Daou ² ; ¹ IS2M, Mulhouse/F; ² CNRS-Université de Bourgogne, Dijon/F	
15:40	COFFEE BREAK	
	Adsorbent Materials VI <i>Chair: D. Siderius, National Institute of Standards and Technology, Gaithersburg/USA</i>	
16:10 L 2.23	Molecular Level Characterization of CO ₂ Adsorption on Porous Oxides Grafted with Well-Defined Amine Species C. Yoo ¹ ; M. Alkhabbaz ¹ ; P. Bollini ¹ ; G. Foo ¹ ; S. Didas ¹ ; C. Sievers ¹ ; C. Jones ¹ ; C. Chen ² ; R. Marti ² ; S. Hayes ² ; ¹ Georgia Institute of Technology, Atlanta/USA; ² Washington University, St. Louis/USA	
16:30 L 2.24	Characterization of the MIL-125(Ti) structure with high-performance liquid chromatography revealing cis/trans selectivity S. Van der Perre ¹ ; B. Bueken ² ; D. de Vos ² ; G. Baron ¹ ; J. Denayer ¹ ; ¹ Vrije Universiteit Brussel/B; ² Katholieke Universiteit Leuven/B	
16:50 L 2.25	Novel MIL-101(Cr, Mg) adsorbent with high CO ₂ adsorption capacity and CO ₂ /N ₂ selectivity Z. Li ¹ ; Z. Zhou ² ; J. Xiao ² ; ^{1,2} South China University of Technology, Guangzhou/CN	
17:10 L 2.26	Induced-Fit Gas Uptake in Solids of Cyclic Porphyrin Dimers H. Nishihara ¹ ; ¹ Tohoku University, Sendai/J	
17:30	GROUP PHOTO & POSTER DISCUSSION (until 19:30)	

		Ludwig-Dürr-Saal
7:45	TUTORIAL	
-	Porous Materials Zoology: A dive into the world of COFs, CTFs, KITs, MAFs, MOFs, PIZOFs, ZIFs....	
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		Hugo-Eckener-Saal
		<i>Chair: P.A. Webley, The University of Melbourne/AUS</i>
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	R. Ryoo, Korea Advanced Institute of Science and Technology, Daejeon/ROK	
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	M. Stegmaier ¹ ; ¹ Linde AG, Engineering Division, Pullach/D	
10:10	Optimal design and operation of temperature swing adsorption cycles for CO₂ capture	
PL 5	L. Joss ¹ ; S. Zanco ¹ ; D. Marx ¹ ; M. Hefti ¹ ; M. Gazzani ¹ ; M. Mazzotti ¹ ; ¹ ETH Zürich/CH	
10:35	COFFEE BREAK	
		Alfred-Colsman-Saal
Liquid Phase and Gas Phase Adsorption Processes I		
<i>Chair: S. Farooq; National University of Singapore, Singapore/SGP</i>		
11:05	Equilibrium and kinetics of high molecular weight n-paraffins on calcium LTA molecular sieve	
L 5.1	V. Águeda ¹ ; M. Uguina ¹ ; J. Delgado Dobladez ¹ ; M. Holik ¹ ; I. López ² ; J. Lázaro ³ ; J. Peláez ³ ; ¹ Universidad Complutense de Madrid/E; ² Cepsa Química S.A., Madrid/E; ³ Centro Investigación Cepsa, Alcalá de Henares/E	
11:25	Preparative separation of the racemic mixtures of fluorinated anaesthetics in the in-house packed enantioselective columns	
L 5.2	I. Mutavdzin ¹ ; T. Munkelt ² ; A. Seidel-Morgenstern ³ ; ¹ Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg/D; ² Otto von Guericke University, Institute of Process Engineering, Magdeburg/D; ³ Max Planck Institute for Dynamics of Complex Technical Systems; Otto von Guericke University, Institute of Process Engineering, Magdeburg/D	
11:45	High purity oxygen separation from air using silver exchanged titanasilicates (Ag-ETS-10)	
L 5.3	S. Hosseinzadeh Hejazi ¹ ; ¹ University of Alberta, Edmonton/CDN	
12:05	Adsorption of Components of Li-Ion Battery Electrolyte onto Activated Carbon	
L 5.4	F. Stehmann ¹ ; S. Scholl ¹ ; ¹ TU Braunschweig/D	
12:25	Characterization of asymmetric dioxin adsorption onto FAU-13X Zeolites	
L 5.5	O. Schaefer ¹ ; ¹ MADIREL/CNRS and Aix Marseille Université, Marseille/F	
12:45	LUNCH	
		Hugo-Eckener-Saal
		<i>Chair: S. Calero; University Pablo de Olavide, Seville/E</i>
13:45	PLENARY LECTURE	
PL 6	Convergence of Theory and Simulations in the Analysis of Experimental Adsorption Isotherms in Nanoporous Carbons	
	T. Mays ¹ ; T. Düren ¹ ; V. Ting ¹ ; ¹ University of Bath, BATH/UK	
14:10	BREAK FOR CHANGING THE LECTURE HALL	
		Alfred-Colsman-Saal
Liquid Phase and Gas Phase Adsorption Processes II		
<i>Chair: D.D. Do, University of Queensland/AUS</i>		
14:20	Pretreatment of liquid industrial streams by adsorption	
L 5.6	A. Tchernook ¹ ; ¹ Linde AG, Engineering Division, Pullach/D	
14:40	Systematic sorption studies of camptothecin on oxidized single-walled carbon nanotubes	
L 5.7	B. Permana ¹ ; T. Ohba ¹ ; T. Itoh ¹ ; H. Kanoh ¹ ; ¹ Chiba University, Chiba/J	
15:00	Adsorptive purification of Ionic Liquids for their reuse in cellulose dissolution and functionalization	
L 5.8	M. Möbius ¹ ; S. Scholl ¹ ; ¹ Technische Universität Braunschweig, Institut für Chemische und Thermische Verfahrenstechnik (ICTV), Braunschweig/D	
15:20	Reactive Chromatography for the Synthesis of Propylene Glycol Methyl Ether Acetate by Esterification and Transesterification	
L 5.9	J. Oh ¹ ; S. Tie ¹ ; G. Agrawal ¹ ; B. Sreedhar ² ; M. Donaldson ² ; A. Schultz ² ; T. Frank ² ; A. Bommaris ¹ ; Y. Kawajiri ¹ ; ¹ Georgia Institute of Technology, Atlanta/USA; ² The Dow Chemical Company, Midland/USA	
15:40	COFFEE BREAK	
Environmental Applications I		
<i>Chair: M. Kaspereit, Universität Erlangen-Nürnberg, Erlangen/D</i>		
16:10	Electric Swing Adsorption for selective CO₂ capture from flue gases	
L 6.1	C. Grande ¹ ; ¹ SINTEF Materials and Chemistry, Oslo/N	
16:30	Structured MOFs Adsorbents for CO₂ Capture Applications	
L 6.2	F. Rezaei ¹ ; ¹ Missouri University of Science & Technol, Rolla/USA	
16:50	VSA Process for Carbon Capture and Concentration – What are the limits?	
L 6.3	M. Khurana ¹ ; S. Farooq ¹ ; ¹ National University of Singapore, Singapore/SGP	
17:10	Molecular insight into CO₂ “Trapdoor” Adsorption in zeolite Rho	
L 6.4	D. Kohen ¹ ; F. Coudert ² ; ¹ Carleton College, Northfield/USA; ² Chimie Paris Tech –CNRS, Paris/F	
17:30	GROUP PHOTO & POSTER DISCUSSION (until 19:30)	

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Ludwig-Dürr-Saal

7:45 – 8:45	TUTORIAL Recent advances in statistical thermodynamics and molecular simulation of adsorption A. Neimark, Rutgers University, NJ/USA
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Hugo-Eckener-Saal

Chair: G.V. Baron, Vrije Universiteit Brussel/B

9:00 PL 7	PLENARY LECTURES Revisiting Highly Nanoporous Carbons: Pore Structures and Capacitance Uptakes Y. Tao ¹ ; K. Annamalai ¹ ; H. Muramatsu ² ; K. Oshida ³ ; M. Endo ² ; K. Kaneko ⁴ ; ¹ Haixi Institutes, Chinese Academy of Sciences, Fuzhou/CN; ² Faculty of Engineering, Shinshu University, Nagano/J; ³ National Institute of Technology, Nagano College, Nagano/J; ⁴ Center for Energy and Environmental Science, Shinshu University, Nagano/J
9:25 PL 8	CO₂ sorption behaviors of clay minerals and clay mineral/brine systems under subcritical to supercritical conditions: Contribution of the adsorption study to geological CO₂ sequestration P. Jeon ¹ ; C. Lee ¹ ; ¹ Yonsei University, Seoul/ROK
9:50	COFFEE BREAK

Hugo-Eckener-Saal

Fundamentals of Adsorption VII

Chair: F. Dreisbach, Rubotherm GmbH, Bochum/D

10:20 L 1.27	Study of the CO₂ and CH₄ diffusional mechanisms into Carbon Molecular Sieve adsorbents for fast-PSA process design C. Garénaux ¹ ; L. Hamon ² ; G. De Weireld ¹ ; P. Préz ² ; ¹ Université de Mons (UMONS), Mons/B; ² Ecole des Mines de Nantes, Nantes/F
10:40 L 1.28	En route to knowledge-based design of particle surfaces via resolving ligand adsorption in colloids on a molecular level W. Lin ¹ ; M. Haderlein ² ; J. Walter ² ; W. Peukert ² ; D. Segets ² ; ¹ Institute of Particle Technology (LFG), Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen/D; ² Institute of Particle Technology (LFG), Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen/D
11:00 L 1.29	Kinematic and thermodynamic view on localized and mobile adsorption – computational study on molecules doublets M. Ziótkowska ¹ ; J. Milewska-Duda ¹ ; J. Duda ¹ ; ¹ AGH University of Science and Technology, Kraków/PL
11:20 L 1.30	Window effects in Zeolites: Adsorption and Separation of Saturated and Unsaturated Hydrocarbons A. Luna-Triguero ¹ ; J. Vicent-Luna ¹ ; D. Dubbeldam ² ; P. Gómez-Álvarez ¹ ; S. Calero ¹ ; ¹ University Pablo de Olavide, Seville/E; ² University of Amsterdam, Amsterdam/NL
11:40	BREAK FOR CHANGING THE LECTURE HALL

Hugo-Eckener-Saal

Chair: F. Dreisbach, Rubotherm GmbH, Bochum/D

11:50 PL 9	PLENARY LECTURE From Global Societal Challenges to Research Projects in Adsorption Technology D. Bathen, University of Duisburg-Essen, Duisburg/D
12:15	Departure for the Excursion to Schloss Neuschwanstein (Return around 23:00)

Ludwig-Dürr-Saal

7:45 – 8:45	TUTORIAL Recent advances in statistical thermodynamics and molecular simulation of adsorption A. Neimark, Rutgers University, NJ/USA
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Hugo-Eckener-Saal

Chair: G.V. Baron, Vrije Universiteit Brussel/B

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9:25 PL 8	CO₂ sorption behaviors of clay minerals and clay mineral/brine systems under subcritical to supercritical conditions: Contribution of the adsorption study to geological CO₂ sequestration P. Jeon ¹ ; C. Lee ¹ ; ¹ Yonsei University, Seoul/ROK
9:50	COFFEE BREAK

Ludwig-Dürr-Saal

Environmental Applications II

Chair: F. Rezaei, Missouri University of Science & Technol, Rolla/USA

10:20 L 6.5	Toxic Gas Sensing on Nanoporous Carbons T. Bandosz ¹ ; N. Travlou ² ; M. Seredych ³ ; E. Rodríguez-Castellón ⁴ ; ¹ CCNY/CUNY, New York/USA; ² CCNY/GC CUNY, New York/USA; ³ CCNY, New York/USA; ⁴ University of Malaga/E
10:40 L 6.6	Adsorption of Metal Hydroxide Thin Films for Water Treatment Technologies Y. Ren ¹ ; S. Chiam ¹ ; J. Liu ² ; F. Li ² ; ¹ Institute of Materials Research and Engineering, Singapore/SGP; ² National University of Singapore, Singapore/SGP
11:00 L 6.7	Electric Swing Adsorption Cycle for CO₂ Removal from Flue Gases of Power Plants M. Jecmenica Ducic ¹ ; I. Djukic ¹ ; M. Petkovska ¹ ; N. Nikacevic ¹ ; J. Rodríguez ² ; G. Sanchis ² ; B. Schuerer ³ ; D. Bonalumi ⁴ ; G. Manzolini ⁴ ; C. Grande ⁵ ; ¹ Faculty of Technology and Metallurgy, University of Belgrade/SRB; ² Process Systems Enterprise Limited, London/UK; ³ Linde AG, Pullach/D; ⁴ Politecnico di Milano/I; ⁵ SINTEF, Oslo/N
11:20 L 6.8	New PSA Cycle for Removing and Concentrating Metabolic CO₂ Produced during Closed-Loop Human Space Exploration Missions A. Ebner ¹ ; H. Erden ¹ ; J. Ritter ¹ ; ¹ University of South Carolina, Columbia/USA
11:40	BREAK FOR CHANGING THE LECTURE HALL

Hugo-Eckener-Saal

Chair: F. Dreisbach, Rubotherm GmbH, Bochum/D

11:50 PL 9	PLENARY LECTURE From Global Societal Challenges to Research Projects in Adsorption Technology D. Bathen, University of Duisburg-Essen, Duisburg/D
12:15	Departure for the Excursion to Schloss Neuschwanstein (Return around 23:00)



Ludwig-Dürr-Saal

7:45 – 8:45 **TUTORIAL**
Recent advances in statistical thermodynamics and molecular simulation of adsorption
A. Neimark, Rutgers University, NJ/USA

Hugo-Eckener-Saal

Chair: G.V. Baron, Vrije Universiteit Brussel/B

9:00 PL 7 **PLENARY LECTURES**
Revisiting Highly Nanoporous Carbons: Pore Structures and Capacitance Uptakes
Y. Tao¹; K. Annamalai¹; H. Muramatsu²; K. Oshida³; M. Endo²; K. Kaneko⁴; ¹ Haixi Institutes, Chinese Academy of Sciences, Fuzhou/CN; ² Faculty of Engineering, Shinshu University, Nagano/J; ³ National Institute of Technology, Nagano College, Nagano/J; ⁴ Center for Energy and Environmental Science, Shinshu University, Nagano/J

9:25 PL 8 **CO₂ sorption behaviors of clay minerals and clay mineral/brine systems under subcritical to supercritical conditions: Contribution of the adsorption study to geological CO₂ sequestration**
P. Jeon¹; C. Lee¹; ¹ Yonsei University, Seoul/ROK

9:50 COFFEE BREAK

Alfred-Colsman-Saal

Characterisation of Adsorbent Materials I

Chair: M. Thommes, Quantachrome Corporation, Boynton Beach/USA

10:20 L 7.1 **Rapid evaluation of functional materials using optical calorimetry**
M. Wöllner¹; M. Benusch¹; W. Grahlert¹; S. Kaskel²; ¹ Fraunhofer IWS, Dresden/D; ² TU Dresden/Fraunhofer IWS, Dresden/D

10:40 L 7.2 **In situ X-ray diffraction and absorption techniques for the characterization of flexible MOFs**
V. Bon¹; S. Krause¹; I. Senkowska¹; D. Wallacher²; S. Kaskel¹; ¹ Technische Universität Dresden/D; ² Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin/D

11:00 L 7.3 **In-situ studies of adsorbent materials by synchrotron radiation**
Q. Gu¹; ¹ Australian Synchrotron, Clayton/AUS

11:20 L 7.4 **An experimental and modeling study of the adsorption equilibrium and dynamics of water vapor on activated carbon**
M. Hefti¹; L. Joss²; D. Marx²; M. Mazzotti²; ^{1,2} ETH Zürich/CH

11:40 BREAK FOR CHANGING THE LECTURE HALL

Hugo-Eckener-Saal

Chair: F. Dreisbach, Rubotherm GmbH, Bochum/D

11:50 PL 9 **PLENARY LECTURE**
From Global Societal Challenges to Research Projects in Adsorption Technology
D. Bathen, University of Duisburg-Essen, Duisburg/D

12:15 **Departure for the Excursion to Schloss Neuschwanstein**
(Return around 23:00)

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		Ludwig-Dürr-Saal
7:45 - 8:45	TUTORIAL Adsorption processes A. Rajendran, University of Alberta/CDN; S. Farooq, National University of Singapore/SGP	
		Hugo-Eckener-Saal
<i>Chair: A.E. Rodrigues, University of Porto/P</i>		
09:00 KL 3	INVITED KEYNOTE LECTURE Forced modulation of operating conditions in chromatographic separation: potential and pitfalls D. Antos, Rzeszow University of Technology/PL	
09:45 PL 10	PLENARY LECTURES An attempt to rationalize chromatographic processes optimization R. Nicoud ¹ ; ¹ Ypso-Facto, Nancy/F	
10:10 PL 11	Characterization of porous solids for accessible volume, accessible area, and excess versus absolute adsorption isotherm D. Do ¹ ; J. Tan ¹ ; P. Phadungbut ¹ ; Y. Zeng ¹ ; L. Prasetyo ¹ ; C. Fan ² ; D. Nicholson ¹ ; ¹ The University of Queensland, Brisbane/AUS; ² Curtin University of Technology, Perth/AUS	
10:35	COFFEE BREAK	
		Hugo-Eckener-Saal
Pressure Swing Adsorption and Simulated Moving Bed Processes I		
<i>Chair: J. Mota, Universidade NOVA de Lisboa, Caparica/P</i>		
11:05 L 8.1	Separation of guaifenesin enantiomers by simulated moving bed process with four operation modes R. Gong ¹ ; J. Li ¹ ; J. Wang ¹ ; P. Li ¹ ; J. Yu ¹ ; ¹ East China University of Science and Technology, Shanghai/CN	
11:25 L 8.2	Experimental Validation of High Throughput Separation by Rapid Pressure Swing Adsorption M. Rahman ¹ ; A. Ebner ¹ ; J. Ritter ¹ ; ¹ University of South Carolina, Columbia/USA	
11:45 L 8.3	Impact of hydrodynamic on Simulated Moving Bed performances D. Leinekugel-le-Cocq ¹ ; L. Fangueiro Gomes ¹ ; F. Augier ¹ ; I. Vinkovic ² ; S. Simoëns ³ ; ¹ IFP Energies nouvelles (IFPEN), Solaize/F; ² University Lyon 1, Villeurbanne/F; ³ Ecole Centrale de Lyon, Ecully/F	
12:05 L 8.4	Systematic Simulation, optimization and analysis of VPSA process for mixture gases separation under external disturbances D. Zhang ¹ ; ¹ Tiangjin University, Tianjin/CN	
12:25 L 8.5	Gas-Phase Simulated Moving Bed: Ethane/Ethylene Separation on 13X zeolite binderless V. Martins ¹ ; A. Ribeiro ¹ ; J. Santos ¹ ; J. Loureiro ¹ ; A. Ferreira ¹ ; A. Rodrigues ¹ ; ¹ FEUP, Porto/P; ² Jacobs Engineering Group Inc., Antwerp/B	
12:45	LUNCH	
		Hugo-Eckener-Saal
<i>Chair: J. Ritter; University of South Carolina, Columbia/USA</i>		
13:45 PL 12	PLENARY LECTURE Investigations of adsorption-induced deformation in hierarchically structured silica G. Reichenauer ¹ ; C. Balzer ¹ ; A. Waag ¹ ; S. Gehret ¹ ; O. Paris ² ; R. Morak ² ; N. Hüsing ³ ; F. Putz ³ ; M. Elsässer ³ ; G. Gor ⁴ ; A. Neimark ⁵ ; ¹ ZAE Bayern, Würzburg/D; ² Montanuniversität Leoben, Leoben/A; ³ Paris-Lodron Universität, Salzburg/A; ⁴ Naval Research Laboratory, Washington DC/USA; ⁵ Rutgers University, New Brunswick/USA	
14:10	BREAK FOR CHANGING THE LECTURE HALL	
Pressure Swing Adsorption and Simulated Moving Bed Processes II		
<i>Chair: J. Ritter; University of South Carolina, Columbia/USA</i>		
14:20 L 8.6	Dynamics of gas adsorption processes for systems governed by different phenomena J. Vargas Schmitz ¹ ; M. Hovestadt ¹ ; M. Kriesten ¹ ; M. Hartmann ¹ ; M. Kasperit ¹ ; ¹ Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D	
14:40 L 8.7	H₂ Pressure Swing Adsorption for High Pressure Effluent Gas in an Integrated Gasification Combined Cycle Plant D. Moon ¹ ; C. Lee ¹ ; ¹ Yonsei University, Seoul/ROK	
15:00 L 8.8	Ethane Recovery from Residue Gas Using Pressure Swing Adsorption: Process design, optimization and adsorbent selection A. Avila ¹ ; L. Estupinan-Perez ¹ ; J. Sawada ¹ ; A. Rajendran ¹ ; S. Kuznicki ¹ ; ¹ University of Alberta, Edmonton/CDN	
15:20 L 8.9	Gas Separation using a Two-Column Simulated Moving Bed System R. Ribeiro ¹ ; I. Esteves ¹ ; J. Mota ¹ ; ¹ LAQV, REQUIMTE, Caparica/P	
15:40	COFFEE BREAK	
Pressure Swing Adsorption and Simulated Moving Bed Processes III		
<i>Chair: C.-H. Lee, Yonsei University/ROK</i>		
16:10 L 8.10	A comparison of process cycle configurations in dual-reflux pressure swing adsorption units via equilibrium theory T. Bhatt ¹ ; G. Storti ² ; J. Denayer ¹ ; R. Rota ³ ; ¹ Vrije Universiteit Brussel (VUB), Brussels/B; ² ETH Zürich/CH; ³ Politecnico di Milano/I	
16:30 L 8.11	Optimising Product Purity and CH₄ Recovery in Nitrogen-Methane Separations by Dual Reflux Pressure Swing Adsorption E. May ¹ ; T. Saleman ¹ ; G. Li ¹ ; ¹ The University of Western Australia, Crawley/AUS	
16:50 L 8.12	Strategies for multicomponent separation of nadolol stereoisomers by Simulated Moving Bed and JO processes A. Ribeiro ¹ ; N. Graça ² ; R. Arafah ¹ ; A. Rodrigues ² ; L. Pais ¹ ; ¹ Polytechnic Institute of Bragança/P; ² Faculty of Engineering, University of Porto/P	
		Hugo-Eckener-Saal
17:15	General Assembly of all members of IAS (17:15 - 18:00)	
18:45	Departure for Conference Dinner at the Dornier-Museum (Return around 23:30)	

		Ludwig-Dürr-Saal
7:45 - 8:45	TUTORIAL Adsorption processes A. Rajendran, University of Alberta/CDN; S. Farooq, National University of Singapore/SGP	
		Hugo-Eckener-Saal
<i>Chair: A.E. Rodrigues, University of Porto/P</i>		
09:00 KL 3	INVITED KEYNOTE LECTURE Forced modulation of operating conditions in chromatographic separation: potential and pitfalls D. Antos, Rzeszow University of Technology/PL	
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10:35	COFFEE BREAK	
		Ludwig-Dürr-Saal
Molecular Modeling I		
<i>Chair: K. Kaneko, Shinshu University, Nagano/J</i>		
11:05 L 9.1	A Density Functional Theory Computational Study of Alkali Cation-Exchanged sod-ZMOF for CO₂, N₂, and CH₄ Adsorption P. Webley ¹ ; J. Shang ¹ ; G. Li ² ; J. Liu ³ ; ¹ The University of Melbourne/AUS; ² The University of Western Australia, Perth/AUS; ³ Monash University, Clayton/AUS	
11:25 L 9.2	Understanding Gas Separation Selectivity in IRMOF-8 by a Combination of Molecular Simulation and Experiment R. Pillai ¹ ; M. Pinto ² ; J. Pires ² ; M. Jorge ³ ; J. Gomes ¹ ; ¹ University of Aveiro/P; ² University of Lisbon/P; ³ University of Strathclyde, Glasgow/UK	
11:45 L 9.3	An Accurate and Transferrable Molecular Model to Predict Adsorption in Metal Organic Frameworks with Open Metal Sites C. Campbell ¹ ; M. Jorge ¹ ; J. Gomes ² ; M. Fischer ³ ; ¹ University of Strathclyde, Glasgow/UK; ² University of Aveiro/P; ³ University of Bremen/D	
12:05 L 9.4	Molecular Scale Analysis of Water Sorption in Cement Mesopores P. Bonnaud ¹ ; R. Miura ¹ ; A. Suzuki ¹ ; N. Miyamoto ¹ ; N. Hatakeyama ¹ ; A. Miyamoto ¹ ; ¹ Tohoku University, Sendai/J	
12:25 L 9.5	A new view on surface diffusion from molecular dynamics simulations of solute mobility at chromatographic interfaces J. Rybka ¹ ; A. Hölzel ¹ ; S. Melnikov ¹ ; A. Seidel-Morgenstern ² ; U. Tallarek ¹ ; ¹ Philipps-Universität Marburg/D; ² Max-Planck-Institut für Dynamik komplexer technischer Systeme, Magdeburg/D	
12:45	LUNCH	
		Hugo-Eckener-Saal
<i>Chair: J. Ritter; University of South Carolina, Columbia/USA</i>		
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14:10	BREAK FOR CHANGING THE LECTURE HALL	
		Ludwig-Dürr-Saal
Molecular Modeling II		
<i>Chair: R.Q. Snurr, Northwestern University Evanston/USA</i>		
14:20 L 9.6	Flexibility, Defects and Disorder in Soft Porous Crystals: Molecular Insight from Computational Chemistry A. Boutin ¹ ; A. Fuchs ² ; F. Coudert ² ; ¹ CNRS, École normale supérieure, Paris/F; ² CNRS, Chimie ParisTech, Paris/F	
14:40 L 9.7	Modelling Peptide Adsorption on Inorganic Surfaces P. Anand ¹ ; M. Borkowska-Panek ¹ ; F. Gussmann ¹ ; W. Wenzel ¹ ; ¹ Karlsruhe Institute of Technology (KIT), Karlsruhe/D	
15:00 L 9.8	A joint computational-experimental exploration of the interactions between MOF external surfaces and both gases and polymers R. Semino ¹ ; N. Ramsahye ² ; A. Ghoufi ² ; M. Benzaqui ³ ; N. Steunou ³ ; C. Serre ³ ; A. Vimont ⁴ ; G. Clet ⁵ ; M. Daturi ⁵ ; G. Maurin ¹ ; ¹ Université Montpellier/F; ² Université Rennes/F; ³ Université Versailles Saint Quentin en Yvelines, Versailles/F; ⁴ Ensicaen, UCBN, LCMT-UMR 6507 CNRS, Caen/F	
15:20 L 9.9	Filling dynamics of closed end nanocapillaries D. Schneider ¹ ; R. Valiullin ² ; P. Monson ³ ; ¹ Universität Leipzig, Leipzig/D; ² Universität Leipzig/Fakultät für Physik und Geowissenschaften, Leipzig/D; ³ University of Massachusetts, Amherst/USA	
15:40	COFFEE BREAK	
Molecular Modeling III		
<i>Chair: A.H. Fuchs, CNRS and ChimieParisTech, Paris/F</i>		
16:10 L 9.10	Quasi-Wall Effect by Adsorbed Nitrogen in Nanowindows of Graphene K. Kaneko ¹ ; F. Vallejos-Burgos ² ; ¹ Shinshu University, Nagano/J; ² Center for Energy and Environmental Science, Shinshu University, Nagano/J	
16:30 L 9.11	Molecular dynamics adsorption simulation and gravimetric adsorption experiments of carbon nanotubes in sulfur dioxide, nitrogen and mixed atmospheres F. Kühn ¹ ; T. Kazdal ¹ ; M. Hampe ¹ ; ¹ TU Darmstadt/D	
16:50 L 9.12	Effects of Ionic Liquid Dispersion in Metal-Organic Frameworks and Covalent Organic Frameworks on CO₂ Capture: A Computational Study W. Xue ¹ ; Q. Yang ¹ ; D. Liu ¹ ; C. Zhong ¹ ; ¹ Beijing University of Chemical Technology, Beijing/CN	
		Hugo-Eckener-Saal
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Hugo-Eckener-Saal		
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10:35	COFFEE BREAK	Alfred-Colsman-Saal
Characterisation of Adsorbent Materials II		
<i>Chair: M. Petkovska, University of Belgrade/SRB</i>		
11:05 L 7.5	Modulating Adsorption and Stability Properties in Pillared Metal-Organic Frameworks: A Model System for Understanding Ligand Effects K. Walton ¹ ; N. Burtch ¹ ; ¹ Georgia Institute of Technology, Atlanta/USA	
11:25 L 7.6	Measuring gas adsorption in microporous solids by X-ray CT R. Pini ¹ ; ¹ Imperial College London, London/UK	
11:45 L 7.7	Combining adsorption and separation measurements in membranes: Spectroscopic characterization of a Mixed Matrix MOF/polymer Membrane under gas flow C. Le Guillouzer ¹ ; P. Bazin ¹ ; B. Seoane de la Cuesta ² ; J. Gascon ² ; F. Kapteijn ² ; G. Clet ¹ ; M. Daturi ¹ ; ¹ University of Caen/F; ² TU Delft/NL	
12:05 L 7.8	Combining high-pressure crystallography and molecular simulation to elucidate adsorptions mechanisms in metal organic frameworks C. Hobday ¹ ; C. Morrison ¹ ; S. Moggach ¹ ; T. Düren ² ; ¹ School of Chemistry, University of Edinburgh/UK; ² University of Bath/UK	
12:25 L 7.9	Surface heterogeneity information by means of gas and liquid-phase adsorption isotherms on porous solids S. Amrich ¹ ; T. Hähnel ² ; M. Klaucek ³ ; G. Kalies ¹ ; C. Reichenbach ³ ; D. Klank ⁴ ; ¹ HTW Dresden University of Applied Sciences, Dresden/D; ² HTW Dresden/D; ³ Quantachrome GmbH & Co. KG, Leipzig/D; ⁴ Quantachrome GmbH & Co. KG, Odelzhausen/D	
12:45	LUNCH	Hugo-Eckener-Saal
<i>Chair: J. Ritter, University of South Carolina, Columbia/USA</i>		
13:45 PL 12	PLENARY LECTURE Investigations of adsorption-induced deformation in hierarchically structured silica G. Reichenauer ¹ ; C. Balzer ¹ ; A. Waag ¹ ; S. Gehret ¹ ; O. Paris ² ; R. Morak ² ; N. Hüsing ³ ; F. Putz ³ ; M. Elsässer ³ ; G. Gor ⁴ ; A. Neimark ⁵ ; ¹ ZAE Bayern, Würzburg/D; ² Montanuniversität Leoben, Leoben/A; ³ Paris-Lodron Universität, Salzburg/A; ⁴ Naval Research Laboratory, Washington DC/USA; ⁵ Rutgers University, New Brunswick/USA	
14:10	BREAK FOR CHANGING THE LECTURE HALL	Alfred-Colsman-Saal
Characterisation of Adsorbent Materials III		
<i>Chair: D.C. Silva de Azevedo, Universidade Federal do Ceará/BR</i>		
14:20 L 7.10	A new device for coupling of calorimetric and volumetric equilibrium measurements C. Bläker ¹ ; C. Pasel ¹ ; M. Luckas ¹ ; F. Dreisbach ² ; D. Bathen ¹ ; ¹ University of Duisburg-Essen, Duisburg/D; ² Rubotherm GmbH, Bochum/D	
14:40 L 7.11	An Efficient Method for Generating Single Component Adsorption Isotherms by Temperature Ramping D. Richardson ¹ ; M. Heslop ² ; P. Russell ³ ; ¹ Nottingham Trent University, Loughborough/UK; ² University of Sheffield/UK; ³ Teesside University, Middlesbrough/UK	
15:00 L 7.12	Binary Adsorption Measurement of Carbon Dioxide and Carbon Monoxide on Zeolite Adsorbents M. Eic ¹ ; B. Shirani ¹ ; ¹ University of New Brunswick, Fredericton/CDN	
15:20 L 7.13	University feat. Industry - Cooperative development of highly specialized sorption measuring devices for extreme conditions T. Fieback ¹ ; F. Dreisbach ² ; ¹ Ruhr-Universität Bochum/D; ² Rubotherm GmbH, Bochum/D	
15:40	COFFEE BREAK	
Characterisation of Adsorbent Materials IV		
<i>Chair: K. Walton, Georgia Institute of Technology, Atlanta/USA</i>		
16:10 L 7.14	Mapping the Adsorption and Phase Behavior of Fluids in Micro-Mesoporous Adsorbents with Hierarchical Pore Structure: M. Thommes ¹ ; ¹ Quantachrome Corporation, Boynton Beach/USA	
16:30 L 7.15	Novel experimental evidence highlighting the potentials of transition state theory for predicting mass transfer in nanopores C. Chmelik ¹ ; ¹ University of Leipzig, Leipzig/D	
16:50 L 7.16	Prediction of xylenes adsorption selectivity on exchanged faujasite zeolites: a combined modeling and combinatorial study. C. Laroche ¹ ; Y. Khabzini ¹ ; C. Pagis ¹ ; J. Perez-Pellitero ¹ ; D. Farrusseng ² ; ¹ IFP Energies nouvelles (IFPEN), Solaize/F; ² IRCE Lyon, Villeurbanne/F	Hugo-Eckener-Saal
17:15	General Assembly of all members of IAS (17:15 - 18:00)	
18:45	Departure for Conference Dinner at the Dornier-Museum (Return around 23:30)	

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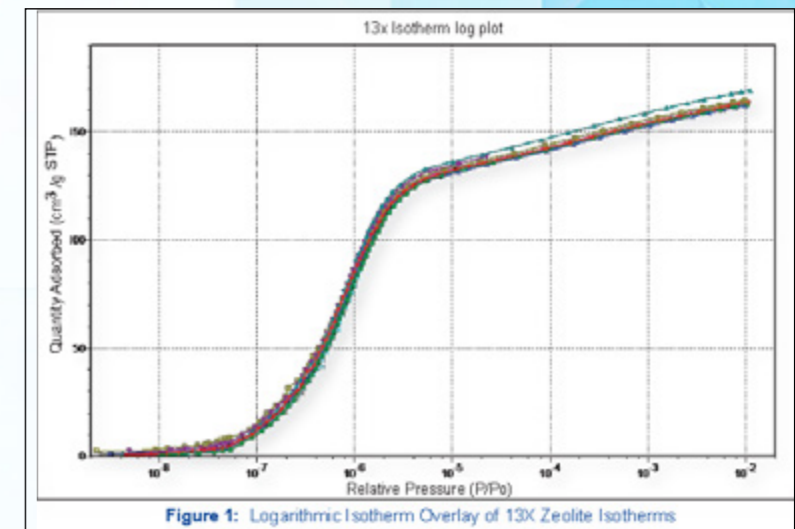


Figure 1: Logarithmic Isotherm Overlay of 13X Zeolite Isotherms



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		Ludwig-Dürr-Saal
8:15 - 9:15	TUTORIAL Structural characterization of nanoporous materials by physical adsorption M. Thommes, Quantachrome Corporation, Boynton Beach/USA	
		Hugo-Eckener-Saal
	Priceholder Session	
	<i>Chairs: G. Baron, Vrije Universiteit Brussel/B and M. Miyahara, Kyoto University/J</i>	
9:30	Lecture of the recipient of the "Ph.D. thesis Award"	
9:50	Lecture of the recipient of the "Senior Scientist Award"	
	Industrial Session	
	<i>Chair: C. Voss, Linde AG, Pullach/D</i>	
10:10 - 10:13	BTX aromatics from alternative feedstocks – challenges for separation processes and beyond S. Reitmeier ¹ ; E. Köhler ² ; J. Freiding ¹ ; ¹ Clariant Produkte (Deutschland) GmbH, Bruckmühl/D; ² Clariant Produkte (Deutschland) GmbH, München/D	
10:30 - 10:14	Materials and system design for adsorption heat pumps to efficiently utilize waste heat and renewable energy P. Ruch ¹ ; J. Ammann ¹ ; X. Daguene-Frick ² ; P. Gantenbein ² ; V. Gupta ³ ; A. Bhargava ³ ; B. Michel ¹ ; ¹ IBM Research, Rüschlikon/CH; ² Institut für Solartechnik SPF, Rapperswil/CH; ³ IIT Gandhinagar, Gandhinagar/IND	
10:50	COFFEE BREAK	
	Industrial Session	
	<i>Chair: C. Voss, Linde AG, Pullach/D</i>	
11:20 - 11:15	Optimization of O₂-VPSA plants by combining high performance adsorbents, advanced processes and customized equipment design P. Keil ¹ ; ¹ Linde AG, Pullach/D	
11:40 - 11:16	New shaped 3A adsorbent for hydrocarbon dehydration applications P. Purcell ¹ ; ¹ Zeochem LLC, Louisville/USA	
12:00 - 12:17	Development of Large-scale CO₂-PSA System for Recovery of CO₂ from Blast Furnace Gas N. Shigaki ¹ ; T. Haraoka ¹ ; Y. Mogi, I. Sumi ¹ ; ¹ JFE Steel Corporation, Hiroshima/J	
12:20 - 12:18	Adsorption processes development: today and tomorrow P. Sa Gomes ¹ ; G. Iffland ¹ ; R. Becher ¹ ; ¹ BASF SE, Chemical and Process Engineering, Ludwigshafen/D	
12:40	CLOSING REMARKS	
12:50	End of Conference	

(Programme subject to change)

	1. Fundamentals of Adsorption
P 1.02	Adsorption Equilibria of Water Vapor on Zeolite 3A, Zeolite 13X, and Dealuminated Y Zeolite (DAY) H. Oh ¹ ; S. Lim ¹ ; K. Kim ¹ ; Y. Park ¹ ; C. Lee ¹ ; ¹ Yonsei University, Seoul/ROK
P 1.03	Adsorption equilibrium of carbon dioxide: modelling, parameters estimability analysis and identification study S. Bedel ¹ ; A. Latifi ¹ ; C. Vallières ¹ ; ¹ LRGP - CNRS - UL, Nancy/F
P 1.04	Multi-layer multi-component Langmuir isotherm model: a novel generic isotherm model for liquid chromatography J. Lee ¹ ; A. Seidel-Morgenstern ¹ ; ¹ Max-Planck-Institute for Dynamics of Complex Technical Systems, Magdeburg/D
P 1.08	Process modelling and simulation of an adsorption heat storage system M. Abou Elfadil ¹ ; S. Mack ² ; T. Hirth ² ; ¹ Universität Stuttgart, Stuttgart/D; ² Fraunhofer IGB, Stuttgart/D
P 1.09	Classical density functional theory for fluid adsorption in nanoporous material Y. Liu ¹ ; H. Liu ¹ ; ¹ East China University of Science and Technology, Shanghai/CN
P 1.10	The ideal adsorbed solution theory: Incorporating site segregation and developing explicit approximations G. Baron ¹ ; T. Van Assche ¹ ; J. Denayer ¹ ; ¹ Vrije Universiteit Brussel (VUB), Brussels/B
P 1.11	Binary and ternary adsorption equilibrium for CO₂/CH₄/N₂ mixtures on commercial zeolite 13X beads from (273 to 333) K and pressures to 900 kPa G. Xiao ¹ ; G. Avijegon ¹ ; E. May ¹ ; ¹ The University of Western Australia, Perth/AUS
P 1.12	Correlations between static thermodynamic properties and dynamic transport properties of confined fluids: Application to adsorption and diffusion in porous W. Kreckelberg ¹ ; D. Siderius ¹ ; V. Shen ¹ ; J. Errington ² ; T. Truskett ³ ; ¹ National Institute of Standards and Technology, Gaithersburg/USA; ² State University of New York, Buffalo, Buffalo/USA; ³ The University of Texas at Austin, Austin/USA
P 1.13	Theoretical study of the effect of trickle phase conditions on competitive adsorption in packed bed adsorption columns P. De Schepper ¹ ; J. Denayer ¹ ; ¹ Vrije Universiteit Brussel (VUB), Elsen/B
P 1.14	Temperature-Regulated Guest Admission in Microporous Materials G. Li ¹ ; J. Shang ² ; Q. Gu ³ ; N. Jensen ¹ ; A. Grant ¹ ; X. Zhang ² ; J. Liu ⁴ ; P. Webley ² ; E. May ¹ ; ¹ The University of Western Australia, Crawley/AUS; ² The University of Melbourne, Melbourne/AUS; ³ Australian Synchrotron, Melbourne/AUS; ⁴ Monash University, Clayton/AUS
P 1.16	Thermodynamic Description and Modelling of Sorption and Capillary Condensation in Porous Systems J. Adolphs ¹ ; ¹ POROTEC GmbH, Hofheim/D
P 1.18	Probing in-cage dynamics of molecular hydrogen in clathrate hydrates as a function of confinement size M. Russina ¹ ; E. Kemner ¹ ; F. Mezei ² ; ¹ Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin/D; ² Wigner Research Center for Physics, Budapest/H
P 1.20	Continuous Mixture Breakthrough Curve O. Marroquin ¹ ; G. Laredo ¹ ; ¹ Instituto Mexicano del Petroleo, Mexico/MEX
P 1.21	Estimation of Concentration Decay Curve by Use of Orthogonal Collocation Method K. Ito ¹ ; N. Sonetaka ¹ ; E. Furuya ¹ ; ¹ Meiji University, Naka-ku Yokohama/J; ² Techno Media Lab, Inc. Tokyo/J; ³ Meiji University, Kawasaki/J
P 1.23	Oscillometric - Volumetric Measurements of Pure Gas Adsorption Equilibria Without the Non-Adsorption of Helium Hypothesis J. Keller ¹ ; M. Göbel ¹ ; T. Seeger ¹ ; C. Reichenbach ² ; ¹ University of Siegen, Siegen/D; ² Quantachrome GmbH&Co.KG, Odelzhausen/D
P 1.24	Theoretical Consideration on Adsorption Equilibrium for Binary Component Systems K. Maruyama ¹ ; E. Furuya ² ; ¹ Meiji University, Tokyo/J; ² Meiji University, Kawasaki/J
P 1.25	Thermodynamics of adsorption of scCO₂ on different substrates S. Reiser ¹ ; M. Türk ¹ ; ¹ Karlsruhe Institute of Technology, Institute for Technical Thermodynamics and Refrigeration, Karlsruhe/D
P 1.26	Adsorption selectivity of para- and ortho-xylene on Beta zeolite using the Headspace technique J. Lima Jr. ¹ ; F. Luna ¹ ; C. Cavalcante Jr. ¹ ; ¹ Universidade Federal do Ceará, Fortaleza/BR
P 1.27	A Novel Experimental Approach for the Investigation of Sorption Phenomena Near Dew Points of Binary Mixtures M. Richter ¹ ; M. McLinden ² ; ¹ Ruhr-Universität Bochum, Bochum/D; ² National Institute of Standards and Technology, Boulder/USA
P 1.28	Development of a Special Densimeter for the Investigation of Sorption Phenomena Near Dew Points of Fluid Mixtures K. Moritz ¹ ; R. Kleinrahm ¹ ; M. McLinden ² ; M. Richter ¹ ; ¹ Ruhr-Universität Bochum, Bochum/D; ² National Institute of Standards and Technology, Boulder/USA
P 1.29	Batch and Continuous Adsorption of Methyl Violet Dye onto XAD-7 Resin N. San ¹ ; D. Kaya ¹ ; ¹ Yildiz Technical University, Istanbul/TR
P 1.30	High pressure equilibrium adsorption isotherms of CO₂ and CH₄ on commercial adsorbents for natural gas separations H. Patterson ¹ ; S. Brandani ¹ ; E. Mangano ¹ ; E. Vilarrasa-Garcia ² ; C. Cavalcante ² ; D. Azevedo ² ; ¹ The University of Edinburgh, Edinburgh/UK; ² Universidade Federal do Ceará, Fortaleza/BR
P 1.31	Polymers of Intrinsic Microporosity (PIMs) for use in Natural Gas Separations S. Morgan ¹ ; E. Mangano ¹ ; S. Brandani ¹ ; M. Ferrari ¹ ; E. Vilarrasa-Garcia ² ; C. Cavalcante ² ; D. Azevedo ² ; ¹ University of Edinburgh, Edinburgh/UK; ² Universidade Federal do Ceará, Fortaleza/BR

P 1.32 **A thermodynamic study of ligand adsorption to colloidal surfaces demonstrated by means of catechols binding to ZnO QDs**
 W. Lin¹; J. Walter²; A. Burger³; H. Maid⁴; A. Hirsch³; W. Peukert⁵; D. Segets⁶
¹ Universität Erlangen-Nürnberg, Erlangen/D; ² Institute of Particle Technology (LFG), Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D; ³ Institute of Organic Chemistry, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D; ⁴ Institute of Organic Chemistry, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D; ⁵ Institute of Particle Technology (LFG), Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D; ⁶ Institute of Particle Technology (LFG), Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen/D

P 1.33 **Selective removal of flavor-active components in food streams**
 S. Saffarionpour¹; L. Van der Wielen¹; T. Noordman²; E. Brouwer²; M. Ottens¹, ¹ Delft University of Technology, Delft/NL; ² Heineken Supply Chain B.V., Zoeterwoude/NL

P 1.34 **Influence of Free-space Calibration using He on the Measurement of Adsorption Isotherms**
 M. Shimomura¹; M. Yoshida²; A. Endo¹; ¹ AIST, Tsukuba/J; ² MicrotracBEL Corp., Osaka/J

2. Adsorbent materials

P 2.01 **Unexpected Adsorption Behaviour for 'Non-porous' SIFSIX MOF**
 C. McAnally¹; E. Cussen¹; A. Fletcher¹; ¹ University of Strathclyde, Glasgow/UK

P 2.02 **Diamine-appended MOFs for CO₂ capture by temperature swing adsorption: on the interplay between materials and cycle design**
 Z. Bjelobrk¹; M. Hefti¹; L. Joss¹; M. Mazzotti¹; ¹ ETH Zürich, Zürich/CH

P 2.03 **Polyethylenimine grafted on organo-magadiite layered silicate to CO₂ and CH₄ adsorption/separation**
 R. Vieira¹; H. Pastore¹; P. de Moura²; E. Vilarrasa-Garcia²; D. de Azevedo²; ¹ University of Campinas, Campinas/BR; ² Federal University of Ceará, Fortaleza/BR

P 2.04 **Equilibrium capacity of He, N₂ and CO₂ on Ga-rich PST-1 zeolite at 303 K and pressures up to 5000 kPa**
 A. Arami-Niya¹; T. Rufford¹; G. Birkett¹; Z. Zhu¹; ¹ The University of Queensland, St Lucia/AUS

P 2.05 **Process Optimization based screening and design of adsorbent materials for post-combustion CO₂ capture**
 A. Rajagopalan¹; A. Avila¹; A. Rajendran¹; ¹ University of Alberta, Edmonton/CDN

P 2.07 **Thermodynamic study of selectivity of liquid-phase adsorption of organic compounds on hyper-cross-linked polystyrene networks with ultimate degrees of cross-linking**
 B. Saifutdinov¹; V. Davankov²; ¹ Samara State Technical University, Samara/RUS; ² Nesmeyanov Institute of Organoelement Compounds, Moscow/RUS

P 2.08 **g-C₃N₄ and its oxidized counterpart composites with MOF as visible-light active chemical warfare agent decontaminants**
 D. Giannakoudakis¹; N. Travlou¹; M. Seredych²; T. Bandosz¹; ¹ The City College of New York and The Graduate Center of the City University of New York/USA; ² The City College of New York/USA

P 2.09 **Porosity of carbon/carbon composite xerogels dried by evaporation**
 K. Kraiwattanawong¹; H. Tamon²; N. Sano²; ¹ King Mongkut's Institute of Technology Ladkrabang, Bangkok/T; ² Kyoto University, Kyoto/J

P 2.11 **SiO₂@IFP Core-Shell Composites for Technical Application**
 H. Holdt¹; H. Bart²; ¹ Universität Potsdam, Potsdam/D; ² Technische Universität Kaiserslautern, Kaiserslautern/D

P 2.12 **MOF Crystal Chemistry Paving the Way to Gas Storage Needs: Aluminum Based soc-MOF for CH₄, O₂ and CO₂ Storage**
 Y. Belmabkhout¹; P.M. Bhatt¹; ¹ King Abdullah University of Science and Technology (KAUST), Thuwal/SAR

P 2.14 **Stepped H₂O isotherms and breakthrough curves on the Al-Fumarate MOF**
 B. Bozbiyik¹; J. Lannoeye²; D. de Vos²; G. Baron³; J. Denayer³; ¹ Vrije Universiteit Brussel, Brussels/B; ² Katholieke Universiteit Leuven, Leuven/B; ³ Vrije Universiteit Brussel, Brussels/B

P 2.15 **Effects of Monolithic Zeolite Honeycomb Structure Adsorbent Beds on Oxygen Production Performance**
 N. Oddo¹; ¹ Oddomotive, Inc., Wake Forest/USA

P 2.16 **Design of Functionalized Nanoporous Adsorbents: molecular modeling coupled with experiments for CO₂ recovery**
 E. Bloch¹; E. Besson²; R. Llewellyn²; S. Girard-Queyroy²; S. Gastaldi³; P. Llewellyn¹; ¹ Aix Marseille University, CNRS, MADIREL UMR 7246, Marseille/F; ² Institut de Chimie Radicalaire, Aix-Marseille University - CNRS UMR7273, Marseille/F; ³ Institut de Chimie Radicalaire, Aix-Marseille University - CNRS UMR7273, Marseille/F

P 2.17 **Removal of lead and cadmium from water by a cancrinite zeolite synthesized from natural kaolin**
 L. Aloui¹; V. wernert¹; O. Schaeff¹; R. Denoyel¹; F. Ayari²; D. Ben Hassen Chehimi²; ¹ Aix-Marseille University, CNRS, MADIREL UMR 7246, marseille/F; ² University of Carthage, Faculty of sciences Bizerte, LACReSNE, Bizerte/TN

P 2.18 **Modification of Mesoporous Carbon and its Adsorption properties of CO₂/H₂O**
 L. Liu¹; D. Meng¹; R. Rao¹; Y. Tian¹; T. Du¹; ¹ Northeastern University, Shenyang/CN

P 2.19 **Graphene Oxide / Mixed Metal Oxide Hybrid Materials for Enhanced Dibenzothiophene Adsorption from Liquid Hydrocarbons Fuels**
 R. Menzel¹; Y. Wang¹; S. Bawaked²; M. Mokhtar²; S. Al-Thabiti²; S. Basahel²; M. S. P. Shaffer¹; D. Iruretagoyena³; ¹ Department of Chemistry, Imperial College London, South Kensington Campus, London, London/UK; ² King Abdulaziz University, Jeddah/SAR; ³ Department of Chemical Engineering, Imperial College London, South Kensington Campus, London, London/UK

P 2.21 **Behavior of CO₂ Adsorption on Faujasite Containing ZnS and ZnS powder in Dark and Bright State**
 S. Yamazaki¹; Y. Muramatsu¹; Y. Matsuoaka¹; S. Koike¹; ¹ Shizuoka Institute of Science and Technology, Fukuroi/J

P 2.22 **Comparison of the metal-organic framework MIL-101 (Cr) versus four commercial adsorbents for nitrogen compounds removal in diesel feedstocks**
 G. Laredo¹; P. Vega-Merino¹; R. Mora-Vallejo¹; J. Montoya-Dela Fuente¹; ¹ Instituto Mexicano del Petroleo, Mexico City/MEX



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- P 2.24 **A Rational Approach to Design Chiral Stationary Phases: Adsorption with Immobilized (S)-Ibuprofen as Chiral Selector**
M. Sun¹; M. Johannsen¹; ¹ Hamburg University of Technology, Hamburg/D
- P 2.25 **MCM-41 early synthesis stages studied by means of a novel implicit solvent model**
C. Ferreira-Rangel¹; S. Auerbach²; P. Monson²; M. Jorge¹; ¹ University of Strathclyde, Glasgow/UK; ² University of Massachusetts, Amherst/USA
- P 2.26 **Polycyclotrimers of 1,4-diethynylbenzene and 1,3,5-triethynylbenzene: Gas adsorption properties**
M. Kubů¹; H. Balcar¹; A. Zuka¹; E. Slovák²; J. Sedláček²; ¹ J. Heyrovsky Institute of Physical Chemistry of the ASCR, Prague/CZ; ² Department of Physical and Macromolecular Chemistry, Faculty of Science, Charles University in Prague, Prague/CZ
- P 2.27 **Selective Adsorption of Volatile Hydrocarbons and gases on High Surface Area Chalcogenides of NaLnSnS₄ (Ln = Y, Gd, Tb)**
F. Edhaim¹; A. Rothenberger¹; ¹ King Abdullah University of Science and Technology (KAUST), Jeddah/SAR
- P 2.29 **Developing a preparative chromatography process for resolving enantiomers of chiral anaesthetics using modified porous glass beads**
T. Munkelt¹; ¹ Otto-von-Guericke-Universität Magdeburg/D
- P 2.31 **Control of water-adsorption properties of microporous aluminophosphates by changing pore structure or adding heteroatoms for water-adsorption-chiller application**
K. Cho¹; S. Kim¹; E. Lee¹; J. Kim¹; ¹ Korea Institute of Energy Research, Daejeon/ROK
- P 2.32 **Fresh water production by mesoporous metal-organic frameworks with high working capacities**
T. Yoon¹; S. Kim¹; S. Lee¹; M. Kim¹; Y. Bae¹; ¹ Yonsei University, Seoul/ROK
- P 2.33 **Negative Gas Adsorption – A new phenomenon in Metal-Organic Framework**
V. Bon¹; S. Krause²; I. Senkova²; U. Stoeck²; D. Wallacher³; D. Töbrens³; S. Zander³; R. Pillai⁴; G. Maurin⁴; F. Coudert⁵; S. Kaskel²; ¹ TU Dresden, Dresden/D; ² Technische Universität Dresden, Institute of Inorganic Chemistry I, Dresden/D; ³ Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin/D; ⁴ Université de Montpellier 2, Montpellier/F; ⁵ Chimie ParisTech – CNRS, Paris/F
- P 2.34 **Determination of Trace Metals in Milk Samples by Atomic Absorption Spectrophotometry after Preconcentration by Aspergillus Niger Immobilized on TiO₂ Nanoparticles**
G. Alpdogan¹; N. San¹; D. Kaya¹; ¹ Yildiz Technical University, Istanbul/TR
- P 2.35 **Characterization of Zeolites with Small Mesopores by Molecular Probe Adsorption**
Y. Tao¹; J. Gao²; ¹ Haixi Institutes, Chinese Academy of Sciences, Fuzhou/CN; ² Chinese Academy of Sciences, Fuzhou/CN
- P 2.36 **Development of an Evaluation Metric from Pressure Swing Adsorption Simulations for Rapid Material Screening**
K. Leperi¹; Y. Chung²; F. You¹; R. Snurr¹; ¹ Northwestern University, Evanston, IL/USA; ² Pusan National University, Busan/ROK
- P 2.37 **Role of Defects and Metal Coordination on Adsorption of Acid Gases in MOFs and Metal Oxides**
W. Mounfield¹; U. Tumuluri²; Y. Jiao¹; M. Li³; S. Dai²; Z. Wu²; K. Walton¹; ¹ Georgia Institute of Technology, Atlanta/USA; ² Oak Ridge National Laboratory, Oak Ridge/USA; ³ University of Tennessee, Knoxville/USA
- P 2.38 **Preparation of Ba_xSr_{1-x}O/MgO Nano-composite Sorbents and its oxygen sorption properties**
J. Park¹; ¹ Korea Institute of Energy Research, Daejeon/ROK
- P 2.39 **Adsorption kinetics of ZIF-8 and its temperature dependence for some large molecules**
T. Yamatani¹; M. Nakai²; T. Ueda²; ¹ Osaka University, Suita, Osaka/J; ² Osaka University, Toyonaka/J
- P 2.40 **Adsorptive Desulfurization of Natural Gas by Metal Organic Frameworks**
G. Chen¹; S. Tan¹; W. Koros²; C. Jones¹; ¹ Georgia Institute of Technology, Atlanta/USA; ² Georgia Institute of Technology, Atlanta/USA
- P 2.41 **New Technology Process of Organic Chloride Removal in Petrochemical**
A. Ketcong¹; ¹ SCG Chemicals, Bangkok/T

3. Biotechnology Applications

- P 3.01 **Selective Adsorption of Sarin Isomers Using Chiral Metal-Organic Frameworks**
F. Lahoz-Martín¹; A. Martín-Calvo²; S. Calero²; ¹ University Pablo de Olavide, Seville/E; ² Universidad Pablo de Olavide, Seville/E
- P 3.02 **Chitosan beads functionalized with amino acids for copper adsorption**
C. Mahl¹; E. de Arruda²; M. Beppu¹; ¹ University of Campinas, Campinas/BR; ² Federal University of Grande Dourados, Dourados/BR
- P 3.03 **Separation of CO₂ from Biogas by Vacuum Swing Adsorption Using Zeolite adsorbents**
Y. Jiang¹; J. Ling²; P. Xiao³; P. Webley³; ¹ Research Institute of Nanjing Chemical Industrial Group, Nanjing/CN; ² Northeastern University, Shenyang/CN; ³ The University of Melbourne, Parkville/AUS
- P 3.04 **Elimination of Cork Taint from Wines by Poly-Halogenated Anisoles Adsorption onto Poly-Olefins**
M. Thomas¹; M. Martin¹; P. Peslerbe¹; ¹ IFP Energies nouvelles, Solaize/F
- P 3.05 **Fructo-oligosaccharides separation and purification by Simulated Moving Bed Chromatography**
C. Castro¹; C. Nobre²; P. Suvarov³; A. Hantson⁴; G. De Weireld²; ¹ Université de Mons, Mons/B; ² Thermodynamics Unit, University of Mons, Mons/B; ³ Automatic Control Department, University of Mons, Mons/B; ⁴ Departamento of Applied Chemistry and Biochemistry, University of Mons, Mons/B
- P 3.06 **Purification of Immunoglobulin G by mixed mode chromatography**
P. Sousa¹; P. Tavares¹; D. Gondim¹; D. de Azevedo¹; I. Silva Jr¹; ¹ Federal University of Ceará / Department of Chemical Engineering, Fortaleza/BR

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- P 4.02 **Adsorptive recovery of ethanol and 2,3-butanediol from the fermentation broth of industrial waste CO and CO₂ gases**
Z. Xiaolei¹; B. Yongxin¹; W. Yijiang¹; L. Ping¹; Y. JIanguo¹; ¹ East China University of Science and Technology, Shanghai/CN
- P 4.03 **Design of MOFs-salts composites for energy storage**
A. Permyakova¹; S. Wang¹; E. Courbon²; F. Nouar³; P. Normand²; P. Billemonet²; G. De Weireld⁴; M. Frere²; N. Steunou¹; C. Serre³;
¹ Institut Lavoisier de Versailles, UVSQ, Versailles/F; ² Université de Mons (UMONS), Mons/B; ³ Institut Lavoisier Versailles, UVSQ, Versailles/F; ⁴ Université de Mons (UMONS), Mons/D
- P 4.04 **Biobutanol separation in vapour phase**
S. Van der Perre¹; M. Palomino²; L. Sánchez²; S. Valencia²; R. Singh³; G. Baron¹; P. Webley³; F. Rey Garcia²; J. Denayer¹; ¹ Vrije Universiteit Brussel, Brussels/B; ² CSIC-UPV, Valencia/E; ³ The University of Melbourne, Melbourne/AUS
- P 4.05 **Can adsorption presents an opportunity to harvest microalgae cells for biofuel applications?**
A. Adeyemi¹; J. Pittman²; N. Brown³; C. Webb²; ¹ The University of Manchester, Ashton under Lyne/UK; ² The University of Manchester, Manchester/UK; ³ Arvia Technology, Chesire/UK
- P 4.06 **Low Pressure Hydrogen Storage by Molecular Trapdoor Zeolites**
G. Li¹; J. Shang²; A. Grant¹; Q. Gu³; N. Jensen¹; Z. Li¹; P. Webley²; J. Liu⁴; E. May¹; ¹ The University of Western Australia, Crawley/AUS; ² The University of Melbourne, Victoria/AUS; ³ Australian Synchrotron, Victoria/AUS; ⁴ Monash University, Victoria/AUS
- P 4.07 **Rationalization of the Performance of a Series of Acidic MOFs as Proton Conductors**
G. Maurin¹; D. Damasceno Borges¹; G. Maurin¹; F. Paesani²; H. Jobic³; F. Nouar⁴; T. Kundu⁴; N. Steunou⁴; C. Serre⁴; ¹ Institut Charles Gerhardt Montpellier UMR 5253 CNRS, Université de Montpellier, Montpellier/F; ² University of California, San Diego/USA; ³ Université de Lyon, Villeurbanne/F; ⁴ Institut Lavoisier de Versailles, Versailles/F
- P 4.08 **Recovery of bio-butanol from fermentation broths by adsorption**
V. Águeda¹; J. Delgado Dobladez²; M. Uguina¹; J. Sotelo Sancho³; Á. García Rodríguez²; ¹ Universidad Complutense de Madrid, MADRID/E; ² Universidad Complutense de Madrid, Madrid/E; ³ Complutense University, Madrid/E
- P 4.09 **Gravimetric Large Temperature Jump approach for studying the kinetic of adsorbers for adsorption heat pumps applications**
V. Brancato¹; A. Frazzica¹; ¹ Consiglio Nazionale delle Ricerche (CNR), Istituto di Tecnologie Avanzate per l'Energia "Nicola Giordano" (ITAE), Messina/I

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D. Marx¹; L. Joss¹; M. Hefti¹; M. Mazzotti¹; ¹ ETH Zurich, Zurich/CH
- P 5.02 **Temperature Swing Adsorption with Indirect Heating and Cooling**
B. Schürer¹; G. Salazar Duarte¹; C. Voss¹; ¹ Linde AG, Engineering Division, Pullach/D
- P 5.03 **Trace level sorption of isoflurane on carbonaceous adsorbents and zeolites**
D. Bucher¹; R. Ortman¹; C. Pasel¹; D. Enke²; M. Fröba³; D. Bathen¹; ¹ Universität Duisburg-Essen, Duisburg/D; ² University of Leipzig, Leipzig/D; ³ University of Hamburg, Hamburg/D
- P 5.04 **Novel Temperature Swing Adsorption process for two-phase separation of aniline from water**
C. Grande¹; ¹ SINTEF Materials and Chemistry, Oslo/N
- P 5.05 **3D printed monoliths for CO₂ separation**
S. Couck¹; J. Lefevre²; G. Desmet³; S. Mullens⁴; L. Protasova⁴; V. Meynen²; J. Denayer³; ¹ VUB, Brussel/B; ² VITO, Mol/Antwerpen/B; ³ Vrije Universiteit Brussel, Brussels/B; ⁴ VITO, Mol/B
- P 5.06 **A concurrent approach for isotherm determination and adsorption process design for multicomponent systems**
S. Guo¹; P. Vengsarkar¹; J.A. Bentley¹; Y. Kawajiri¹; ¹ Georgia Institute of Technology, Atlanta/USA
- P 5.07 **Impact of mass transfer effects on the adsorptive separation of C₁₀ aromatic hydrocarbons**
S. Reitmeier¹; M. Rauch¹; M. Sammon¹; H. Lee²; J. Lee²; H. Chang²; S. Choi²; ¹ Clariant Produkte (Deutschland) GmbH, Bruckmühl/D; ² Hanwha Total Petrochemical Corporation, Daesan/ROK
- P 5.08 **Diastereotopic adsorption processes and chromatographic separation of spin probes in porous organosilica studied by EPR spectroscopy**
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- P 5.09 **Statistical mechanical model of liquid- vapour interface. Equilibrium study and thermodynamic transitions**
A. Kulkarni¹; D. Atre¹; S. Boob¹; S. Inamdar¹; I. Karimi²; B. Kulkarni³; ¹ Vishwakarma Institute of Technology, Pune/IND; ² National University of Singapore, Singapore/SGP; ³ CSIR-National Chemical Laboratory, Pune/IND

6. Environmental Applications

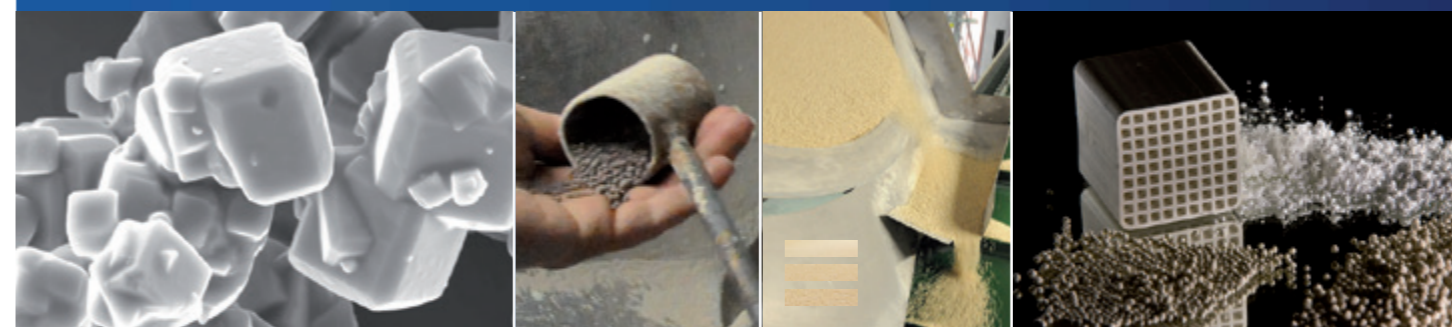
- P 6.01 **Adsorptive smoothers for exhaust gas cleaning – development of process understanding, conducting experiments and a design guideline**
S. Meyer¹; O. Carlowitz¹; M. Napp¹; S. Gutperl¹; ¹ TU Clausthal, Clausthal-Zellerfeld/D
- P 6.02 **Catalytic adsorptive desulfurization using supported nanoporous Ag₂O/SBA-15 under ambient conditions**
J. Xiao¹; ¹ South China University of Technology, guangzhou/CN

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- P 6.04 **Performance of diamine-appended metal organic frameworks exhibiting a S-shaped isotherm for CO₂ capture. A process design and optimization study.**
J. Baboolal¹; S. David¹; A. Rajendran¹; ¹ University of Alberta, Edmonton/CDN
- P 6.05 **Reaction characteristics of hydrated lime sorbents in the real scale spout bed circulating dry scrubber for HCl removal**
Y. Park¹; ¹ Korea institute of energy research, Daejeon/ROK
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L. Deliere¹; B. Coasne²; S. Topin¹; C. Greau¹; C. Moulin¹; D. Farrusseng³; ¹ CEA Commissariat a l'Energie Atomique, Arpajon/F; ² CNRS, Grenoble/F; ³ CNRS, Lyon/F
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Z. Li¹; S. Xian²; J. Xiao²; Q. Xia²; ¹ South China University of Technology, guangzhou/CN; ² South China University of Technology, Guangzhou/CN
- P 6.10 **Nanoporous adsorbents for CO₂ removal in indoor air environments under various moisture conditions**
R. García-González¹; T. Valdés-Solis¹; J. Parra¹; C. O. Ania¹; ¹ Instituto nacional del carbón (INCAR-CSIC), Oviedo/E
- P 6.11 **Adsorption desulfurization by porous organic polymer with metal impregnated**
Y. Xia¹; H. Liu¹; J. Hu¹; ¹ East China University of Science and Technology, Shanghai/CN
- P 6.12 **The Use of a Shuttle Valve in a Pressure Swing Adsorption Process**
N. Pairin¹; P. Tongpadungrod¹; C. Phalakornkule¹; ¹ King Mongkut's University of Technology North Bangkok, Bangkok/TH
- P 6.13 **A MOF for uptake and separation of wet CO₂ : MIL-96(Al)**
V. Benoit¹; I. Beurroies¹; N. Chanut¹; P. Llewellyn¹; R. Pillai²; G. Maurin²; M. Benzaqui³; C. Serre³; ¹ Aix Marseille Université, CNRS, MADIREL UMR 7246, Marseille/F; ² Institut Charles Gerhardt Montpellier UMR 5253 CNRS, Université de Montpellier, Montpellier/F; ³ Institut Lavoisier UMR CNRS 8180, Université de Versailles, Versailles/F
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- P 6.15 **Detection of metal atoms adsorbed on the animal coat-hair by X-ray photoelectron spectroscopy**
A. Hayduk¹; Y. Suchorski²; ¹ Lviv (Lemberg) National Medical University, Lviv (Lemberg)/UA; ² Vienna University of Technology, Vienna/A
- P 6.16 **Adsorption Behaviors of In₃₊ on Clay-Poly(N-Isopropylacrylamide) Nanohybrids**
N. Kamimura¹; Y. Yashiro¹; S. Ishimaru¹; ¹ Tokyo Denki University, Tokyo/J
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H. Nguyen¹; S. Hudson¹; J. Horn¹; B. Boyerinas¹; M. Thommes¹; M. Green¹; R. van Zee¹; L. Espinal¹; ¹ NIST Facility for Adsorbent Characterization and Testing, Gaithersburg/USA
- P 6.18 **Dehydration of CO₂ coming from oxyfuel cement kilns by Temperature Swing Adsorption (TSA) process using zeolites 5A, 13X and silica gel**
N. Meunier¹; P. Billemonet¹; D. Thomas¹; G. De Weireld¹; ¹ University of Mons, Mons/B
- P 6.19 **Adsorption of Gaseous Polycyclic Aromatic Hydrocarbons on Mesoporous Adsorbents**
Z. Li¹; Y. Liu¹; X. Yang¹; Y. Xing¹; Q. Yang¹; R. Yang²; ¹ University of Science and Technology Beijing, Beijing/CN; ² University of Michigan/USA
- P 6.20 **CO₂ Capture from Air using Amine Functionalized MIL-101(Cr)**
L. Darunte¹; K. Walton¹; D. Sholl¹; C. Jones¹; ¹ Georgia Institute of Technology, Atlanta/USA
- P 6.21 **Scale up of layered double hydroxides adsorbent warm H₂/CO₂(H₂S) separation process**
S. Li¹; Y. Shi²; N. Cai¹; Y. Yang¹; X. Zhu¹; ¹ Tsinghua University, Beijing/CN; ² Tsinghua University, China/CN
- P 6.22 **Comparison of Activated Carbon and ZSM5/Activated Carbon Monoliths in Electric Swing Adsorption Process for CO₂ Capture**
I. Đukic¹; M. Ječmenica-Dučič¹; N. Nikačević¹; M. Petkovska¹; Q. Zhao²; D. Danaci²; R. Singh²; P. Xiao²; P. Webley²; ¹ University of Belgrade/ Faculty of Technology and Metallurgy, Belgrade/SRB; ² The University of Melbourne, Melbourne/AUS
- P 6.23 **Cr(VI) and Pd(II) adsorption using agricultural by-products**
H. Kwak¹; H. Yun¹; K. Lee¹; ¹ Seoul National University, Seoul/ROK
- P 6.24 **N₂ plasma treatment on activated carbon fiber for SO₂ gas removal: Assessment of pore structure, N-functional groups, breakthrough, and bed utilization**
B. Bai¹; C. Lee¹; Y. Lee²; J. Im¹; ¹ Korea Research Institute of Chemical Technology, Daejeon/ROK; ² Chungnam National University, Daejeon/ROK
- P 6.25 **Development of Microporous Carbon through Chlorination of Titanium Carbide and Its Application to CF₄ Adsorption**
S. Choi¹; D. Lee¹; J. Kim¹; K. Lee¹; D. Lim¹; ¹ Korea University, Seoul/ROK
- P 6.26 **Analysis of reactive flow in periodic porous media. A chemical reaction with adsorption and desorption on pore surfaces**
C. Khare¹; S. Diwan¹; S. Panse¹; S. Inamdar¹; I. Karimi²; B. Kulkarni³; ¹ Vishwakarma Institute of Technology, Pune/IND; ² National University of Singapore, Singapore/SGP; ³ CSIR-National Chemical Laboratory, Pune/IND
- P 6.27 **Removal of refractory organics from saline concentrate produced by electro dialysis in petroleum industry using bone char**
P. Mesquita¹; M. Cruz²; C. Souza²; P. Vaconcelos²; N. Santos²; S. Rocha³; ¹ Universidade Federal de Minas Gerais / Universidade Federal de São João del-Rei, Belo Horizonte, MG/BR; ² Universidade Federal de São João del-Rei, Ouro Branco/BR; ³ Universidade Federal de Minas Gerais, Belo Horizonte, MG/BR

7. Characterization of adsorbent materials

- P 7.04 **Understanding scanning behaviour in mesoporous materials with disordered pore structures**
D. Kondrashova¹; D. Schneider¹; M. Thommes²; R. Valiullin¹; ¹ University of Leipzig, Leipzig/D; ² Quantachrome GmbH, Boynton Beach/USA
- P 7.05 **Dynamic and equilibrium-based investigations of CO₂ removal from CH₄-rich gas mixtures on zeolites**
C. Reichenbach¹; A. Möller²; R. Eschrich¹; D. Klank¹; A. Brandt³; K. Gleichmann³; ¹ Quantachrome GmbH, Odelzhausen/D; ² Quantachrome GmbH & Co. KG, Odelzhausen/D; ³ Chemiewerk Bad Köstritz GmbH, Bad Köstritz/D
- P 7.06 **Polymer Morphology Impacts CO₂ Adsorption in Supported PEI Composite Materials: Elucidation of PEI Morphology via Neutron Scattering**
A. Holewinski¹; M.A. Sakwa-Novak¹; J.-M. Carillo²; G. Rother³; S. Chai⁴; B. Sumpster²; S. Dai^{3,4}; C.W. Jones¹; ¹ School of Chemical & Biomolecular Engineering, Georgia Institute of Technology, Atlanta/USA; ² Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge/USA; ³ Chemical Science Division, Oak Ridge National Laboratory, Oak Ridge/USA; ⁴ Department of Chemistry, University of Tennessee, Knoxville/USA
- P 7.07 **Using the Elution by Characteristic Point method on packed zeolite columns with a small number of theoretical plates**
D. Hartig¹; S. Scholl²; ¹ Technische Universität Braunschweig, Institut für Chemische und Thermische Verfahrenstechnik (ICTV), Braunschweig/D; ² TU Braunschweig, Institut für Chemische und Thermische Verfahrenstechnik, Braunschweig/D
- P 7.08 **Advanced characterisation of mesoporous carbon aerogels by sequential scanning of the hysteresis loop**
J. Parra¹; C. Ania¹; L. Velasco²; ¹ INCAR-CSIC, OVIEDO/E; ² Dpt. Chemistry, Royal Military Academy, Brussels/B
- P 7.09 **Application of the Maxwell-Stefan model to characterize silicalite membranes**
D. Carter¹; D. Kennedy¹; W. Jin¹; B. Kruczek¹; F.H. Tezel¹; ¹ University of Ottawa, Ottawa/CDN
- P 7.10 **Binary CO₂/CH₄ and CO₂/N₂ adsorption equilibria on Polyethylene Terephthalate (PET)-derived activated Carbon**
P. Moura¹; E. Vilarrasa-Garcia¹; D. Soares-Maia¹; M. Bastos-Neto¹; J. Parra²; D. Azevedo¹; ¹ Universidade Federal do Ceará, Fortaleza/BR; ² Instituto nacional del carbón (INCAR-CSIC), Oviedo/E
- P 7.11 **Design of the micro-mesoporous network of carbon gels**
A. Gomis-Berenguer¹; A. Mestre²; C. O. Ania¹; ¹ Instituto nacional del carbón (INCAR-CSIC), Oviedo/E; ² Universidade de Lisboa, Lisboa/P
- P 7.13 **Adsorption and Diffusion of CH₄ and N₂ Using Ion Exchanged ETS-4 and Clinoptilolite**
D. Kennedy¹; F. Tezel¹; ¹ University of Ottawa, Ottawa/CDN
- P 7.14 **Selective Adsorptives to Study Pore Structure and Wetting Behavior of Self-resourcing Shales**
S. Kumar¹; M. Prasad¹; R. Pini²; ¹ Colorado School of Mines, Golden/USA; ² Imperial College London, London/UK
- P 7.15 **Characterization of Micro-Mesoporous Carbons by High-Pressure N₂, Ar, and CO₂ Adsorption with Hybrid QSDFT Methods**
R. Cimino¹; K. Cychosz²; M. Thommes²; A. Neimark¹; ¹ Rutgers University, Piscataway, NJ/USA; ² Quantachrome Instruments, Boynton Beach, FL/USA
- P 7.16 **Co-adsorption of water and ammonia on stainless steel**
O. Vaitinen¹; M. Metsälä¹; L. Halonen¹; ¹ University of Helsinki, Helsinki/FIN
- P 7.17 **Adsorption of N₂, CH₄, CO and CO₂ on CaX and MgX Zeolites: Simulation of Experimental Breakthrough Curves**
J.A. Delgado¹; V.I. Águeda¹; M.A. Uguina¹; J.L. Sotelo¹; P. Brea¹; ¹ Universidad Complutense de Madrid, Madrid/E
- P 7.18 **Universal high-resolution electromagnetic suspension balance for sorptive characterisation of very small sample quantities**
C. Norton¹; M. Petermann¹; C. Will²; T. Fieback³; ¹ Ruhr-Universität Bochum, Bochum/D; ² Rubotherm GmbH, Bochum/D; ³ TU Bergakademie Freiberg, Freiberg/D
- P 7.19 **Effect of multiwalled carbon nanotubes on structure, morphology and adsorption properties of hyper-crosslinked resins**
R. Castaldo¹; V. Ambrogio²; R. Avolio³; C. Cocca³; M. Errico³; G. Gentile³; M. Avella³; C. Carfagna³; ¹ University of Naples „Federico II“, Napoli/I; ² University of Naples „Federico II“, Napoli/I; ³ National Research Council, Pozzuoli/I
- P 7.20 **The potential of Nonlinear Frequency Response method for estimation of rate constants of simultaneous processes within complex adsorption mechanisms**
D. Brzic¹; M. Petkovska¹; ¹ University of Belgrade/Faculty of Technology and Metallurgy, Belgrade/SRB
- P 7.21 **In-situ dilatometry – a tool to access adsorption-induced deformation of nanoporous materials**
G. Reichenauer¹; C. Balzer²; ¹ ZAE Bayern, Würzburg/D; ² ZAE Bayern, Wuerzburg/D
- P 7.22 **Tolerance of flexible MOFs towards repeated adsorption stress**
I. Senkovska¹; N. Kavoosi²; S. Kaskel²; ¹ TU Dresden, Dresden/D; ² Technische Universität Dresden, Dresden/D
- P 7.23 **Unusual adsorption behaviour and adsorption thermodynamics of ZIF-71 and ZIF-14**
D. Danaci¹; R. Singh¹; P. Webley¹; P. Xiao¹; ¹ The University of Melbourne, Parkville/AUS
- P 7.24 **Experimental determination of the pore shape in amorphous carbon materials**
M. Russina¹; H. Kurig²; I. Tallo²; M. Siebenbürger¹; T. Romann²; E. Lust²; ¹ Helmholtz-Zentrum Berlin, Berlin/D; ² University of Tartu, Tartu/EST
- P 7.25 **Excess surface work and DBdB-model for PSD calculation based on nitrogen and water vapor adsorption on silica-gel with bimodal pore structure**
J. Möllmer¹; H. Uhlig²; A. Kolesnikov²; M. Rückriem³; J. Adolphs³; A. Schreiber³; N. Georgi⁴; D. Enke⁵; R. Gläser⁵; ¹ Institut für Nichtklassische Chemie e.V., Leipzig/D; ² Institut für Nichtklassische Chemie e.V. Leipzig, Leipzig/D; ³ POROTEC GmbH, Hofheim/Ts./D; ⁴ Max-Planck-Institut für Mathematik in den Naturwissenschaften Leipzig, Leipzig/D; ⁵ Universität Leipzig / Institut für Technische Chemie, Leipzig/D
- P 7.26 **Estimation of shales methane reservoirs capacities with differentiation on adsorbed and free CH₄ in porous system**
P. Ziemiański¹; T. Topór²; A. Derkowski²; ¹ AGH University of Science and Technology, Krakow/PL; ² Institute of Geological Sciences, Polish Academy of Sciences, Krakow/PL
- P 7.27 **The effect of heterogeneous model in the uniqueness of N₂ and CO₂ PSD by Monte Carlo simulations**
J. Alexandre de Oliveira¹; T. Fontenele¹; P. F.G. Silvino¹; S. P. de Lucena¹; ¹ Universidade Federal do Ceará, Fortaleza/BR

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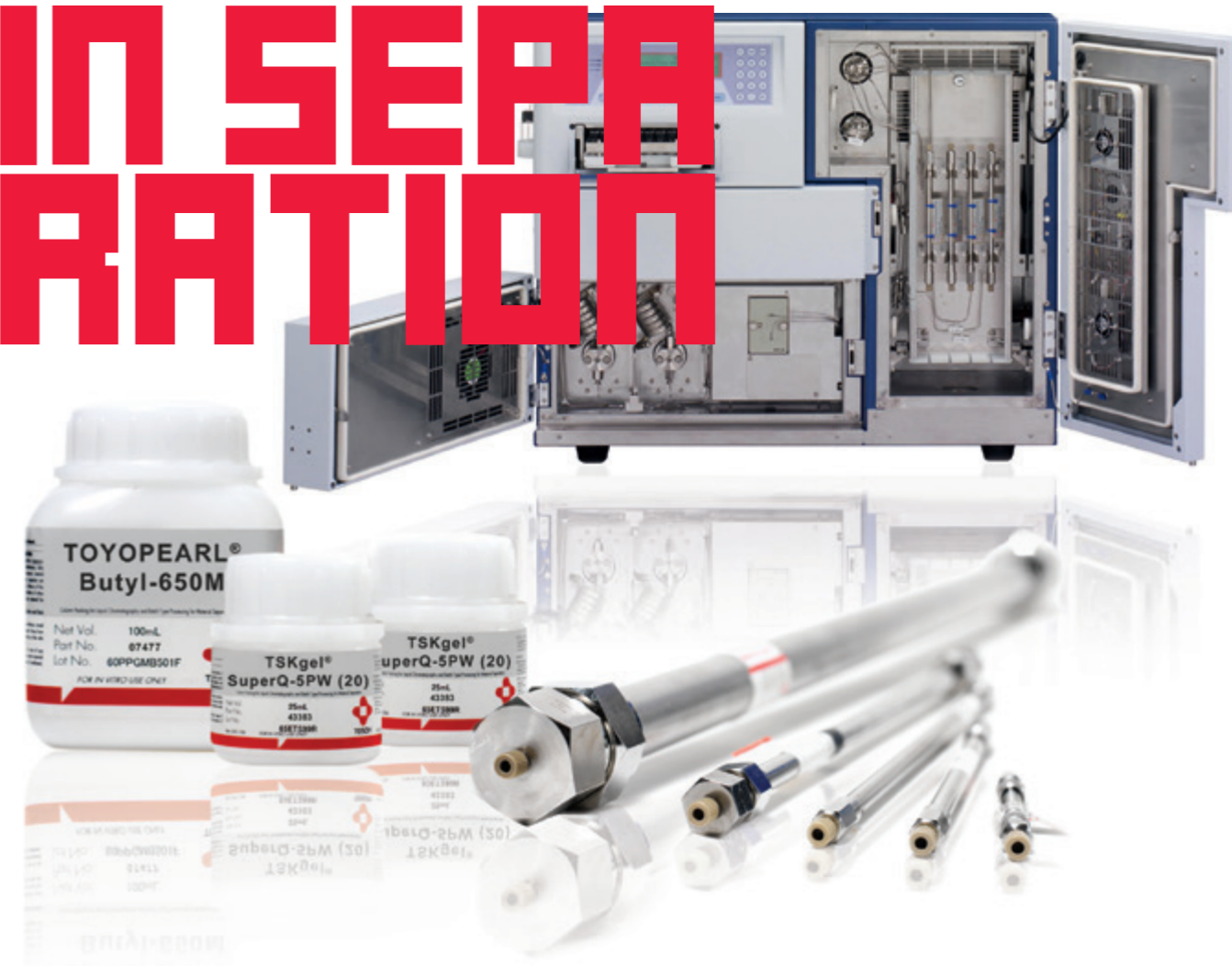
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8. Pressure Swing Adsorption and Simulated Moving Bed Processes

- P 8.01 **Process Integration for Simulated Moving Bed Reactor for Production of Glycol Ether Acetate**
S. Tie¹; B. Sreedhar²; G. Agrawal¹; J. Oh¹; M. Donaldson²; T. Frank²; A. Bommaris¹; Y. Kawajiri¹; ¹ Georgia Institute of Technology, Atlanta/USA; ² The Dow Chemical Company, Midland/USA
- P 8.02 **Evaluation of a pressure-swing adsorption process for recovery of helium from a laboratory shock-tunnel facility**
T. Rufford¹; A. Chua¹; A. Arami-Niya¹; E. Rose¹; D. Gildfind¹; ¹ The University of Queensland, St Lucia/AUS
- P 8.03 **Natural Gas Upgrading – Exploring Energy Efficient Process Alternatives**
S. Effendy¹; S. Farooq¹; I. Karimi¹; ¹ National University of Singapore, Singapore/SGP
- P 8.04 **Batch analogues and improved metrics for rapid screening of adsorbents for post-combustion CO₂ capture**
A. Avila¹; A. Rajagopalan¹; R. De Pauw²; A. Rajendran¹; ¹ University of Alberta, Edmonton/CDN; ² Vrije Universiteit Brussel (VUB), Brussels/B
- P 8.05 **Development of a new adsorption-based cyclic process for high purity-high recovery production of carbon dioxide and hydrogen**
M. Gazzani¹; L. Joss¹; D. Marx¹; M. Mazzotti¹; ¹ ETH Zürich, Zurich/CH
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J. Delgado Dobladez¹; V. Agueda Mate¹; M. Uguina Zamorano¹; J. Sotelo Sancho¹; P. Brea Prieto¹; A. Lazcano Pardos¹; C. Grande²; ¹ Complutense University, Madrid/E; ² SINTEF Materials and Chemistry, Oslo/N
- P 8.07 **Design and Simulation of Industrial Scale Nitrogen-Methane Separations with Dual-Reflux Pressure Swing Adsorption**
Y. Zhang¹; G. Li²; T. Saleman²; B. Young¹; E. May²; ¹ University of Auckland, Auckland/NZ; ² The University of Western Australia, Perth/AUS
- P 8.08 **Pressure Swing Adsorption (PSA) for hydrogen purification using UTSA-16 metal-organic framework**
C. Grande¹; R. Anantharaman²; S. Rousanally²; R. Blom¹; G. Mondino¹; K. Andreasen¹; A. Spjelkavik¹; Ø. Vistad¹; ¹ SINTEF Materials and Chemistry, Oslo/N; ² SINTEF Energy, Trondheim/N
- P 8.09 **Optimization of a fast-Pressure Swing Adsorption Process for the removal of CO₂ from biogas**
M. Campesi¹; C. Garenaux¹; L. Hamon¹; P. Pr  t¹; ¹ Department of Energy Systems and Environment – GEPEA (UMR CNRS 6144),   cole des Mines de Nantes, Nantes/F
- P 8.10 **Modeling, Control and Optimization of the Enantiomeric Separation of Praziquantel in Simulated Moving Bed**
A. Neto¹; A. Secchi¹; M. Souza Jr.¹; A. Gomes Jr.¹; ¹ Universidade Federal do Rio de Janeiro, Rio de Janeiro/BR
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