

Invitation to the XIX. Workshop

about the Characterisation of Fines
and Porous Solids

„Sorption Induced Deformation of Solids: Swelling and Shrinkage“

November 13 – 14, 2018

H+ Hotel Wiesbaden Niedernhausen
Zum Grauen Stein 1
65527 Niedernhausen

Organised from



in Co-operation with

Prof. J.A. Lercher

Prof. D. Enke

Prof. A. Gerdes

Preliminary Program

All lectures will be given in the plenum starting at 09:00 am. During the entire event posters and analytical devices will be exhibited permanently. Parallel to the lectures user trainings with official attendance certificates are offered. Topics comprise Mercury intrusion porosimetry, gas sorption and density measurements.

Keynote Lectures

- Adsorption-induced deformation: solvation pressure and surface stress approaches
G. Gor, New Jersey Institute of Technology, USA
- Where lies hysteresis in materials undergoing sorption-induced swelling?
D. Derome, EMPA, Dübendorf, CH
- Adsorption induced deformation: artefacts and opportunities
Gudrun Reichenauer, ZAE Würzburg, D
- Measuring swelling and shrinkage of porous materials with a digital camera
N. Georgi, GMBU, Halle, D
- New coupled simulation techniques for the study of complex effects in nano- to macro-porous media: deformation, packing and hydrophobicity
P. Matthews, University of Plymouth, UK
- Adsorption induced structural changes probed by neutron scattering
M. Russina, Helmholtz-Zentrum Berlin, D
- Time resolved monitoring of nanoparticles synthesis or aggregation using in situ dynamic light scattering measurements
D. Jacob, Cordouan Technologies, Pessac, F
- Liquid Liquid Displacement Porometry – an alternative to Mercury Intrusion Porosimetry?
A. Serner¹, I. Kienbaum¹, I. Strużyńska-Piron², K. v. d. Kamp¹, D. Pattyn², A. Odena², ¹IB-FT GmbH, Berlin, D, ²POROMETER NV, Eke, B
- Industrial use of IGC for better understanding of material properties
R. Dümpelmann, INOLYTIX AG, Basel, CH
- Gas solid interaction, the key for renewable energy storage
A. Züttel, EPFL, Sion, CH
- Water vapor sorption induced swelling and shrinkage of cementitious materials
J. Adolphs, POROTEC GmbH, Hofheim, D
- Unger-Schmidt Innovationspreisträgerin 2016
J. Hollenbach, University of Southampton, UK

- Suitable pore size distribution theory and adsorption experimentation - N₂ or Ar gas probe, NLDFT or GCMC kernel
K. Nakai, MicrotracBEL Corp., Osaka, J
- Latest instrumental development and improvement in mercury porosimetry and gas pycnometry analytical techniques
L. Lucarelli, ThermoFisher Scientific, Milano, I
- Neueste Normen und Empfehlungen von der DIN, ISO und IUPAC
J. Adolphs, Obmann DIN NA 005-11-43 AA, D

Lectures and Posters

- Binary gas mixture adsorption - Oscillometric-volumetric-gravimetric-measurements - Devoid of the non-adsorption of Helium hypothesis
J. U. Keller, M. U. Göbel, T. Seeger, Institute Fluid-and Thermodynamics, Universität Siegen, D
- Kombination von Adsorptionsvolumetrie und Adsorptionskalorimetrie in einem neuartigen Sensorgaskalorimeter
C. Bläker¹, C. Pasel¹, M. Lucas¹, D. Bathen^{1,2}; ¹Universität Duisburg-Essen, Duisburg, D; ²Institut für Energie- und Umwelttechnik e.V. (IUTA), Duisburg, D
- Eigenschaften keramischer und polymerbasierter Membranfiltermaterialien
A. Vogel¹, N. i Otto², T. P. Vu¹, R. r Gadow¹, U. Menze¹, ¹ Institut für Fertigungstechnologie keramischer Bauteile, Universität Stuttgart, D, ² Institut für Siedlungswasserbau, Wassergüte- und Abfallwirtschaft, Universität Stuttgart, D
- Sorption of superabsorbent polymers in cement-based pastes visualized and quantified by neutron radiography
C. Schröfl¹, V. Mechtcherine¹, E. Lehmann², ¹Technische Universität Dresden, Institute of Construction Materials, Dresden, D, ²Paul Scherrer Institut, Laboratory for Neutron Scattering and Imaging, Villigen, CH
- Einfluss von Frost-Tau-Wechseln auf Membran-Elektroden Einheiten von PEM Brennstoffzellen
S. Palecki, S. Gorelkov, J. Wartmann, A. Heinzel; Zentrum für Brennstoffzellentechnik (ZBT), Duisburg, D
- Adsorption of polar and nonpolar vapors on porous materials studied by Inverse Gas Chromatography (IGC)
R. Meyer¹, F. Bauer¹, D. Enke¹, M. Steinhart², ¹Inst. Chemical Technology, Universität Leipzig, D, ²Inst. Chemistry of New Materials, Universität Osnabrück, D
- Removal of precious metals from aqueous solutions by selective extraction with modified Silica gel and MCM-41
H. Uhlig¹, J. Möllmer¹, J. Hofmann¹, R. Gläser¹, J. Träger², H.-J. Holdt²
¹Institut für Nichtklassische Chemie e.V., Leipzig, D, ²Universität Potsdam, Anorganische Chemie, Potsdam OT Golm, D

- Aspects of Zeta-potential as a characteristic of surfaces and interfaces

R. Kohler, University Reutlingen, D

- 3D Modellierung und Simulation von reaktiven Transportprozessen in porösen mineralischen Systemen - vom Experiment zum Model am Beispiel der Hydrophobierung von Beton

A. Leibold, KIT, Innovation HUB Prävention im Bauwesen, Karlsruhe, D

- BET-surface area as key parameter for discrimination between nano- or conventional material

Z. Bayram-Hahn, A. Hahn, ZetA Partikelanalytik GmbH, Mainz, D

- Photocatalytic air and water cleaning with surface fixed Titanium dioxide photocatalysts

T. Schnabel, MFPA, Weimar, D

- Innovationen und Technologietransfer - Neue Kooperationsformate in der Zusammenarbeit zwischen Öffentlicher Forschung und Wirtschaft

A. Gerdas, KIT, Innovation HUB Prävention im Bauwesen, Karlsruhe, D

- Investigations on the effects of dwell time and Mercury entrapment during characterization of isoporous model glasses by Mercury porosimetry

R. Kohns, D. Enke, Institute of Chemical Technology, Universität Leipzig, D

- In-situ-SAXS-Krypton-Sorption on meso-macroporous SiO₂ monoliths

B. Smarsly, R. Ellinghaus, S. Kube, D. Stöckel, D. Wallacher, Universität Giessen, D

- Characterization of novel MWW and IPC materials with tunable size of metal particles (by adsorption)

M. Kubu, Y. Zhang, M. Mazur, J. Čejka, J. Heyrovsky Institute, Prague, CZ

- Molecular mechanisms of mechanical and chemical corrosion on cement-bound materials

P. Thissen, Institute of Functional Interfaces, KIT, Karlsruhe, D

- Shape-stabilized composite phase change materials for thermal energy storage systems

F. Marske¹, T. Hahn¹, D. Enke², ¹Martin-Luther-Universität Halle-Wittenberg, Technische Chemie, Halle, Institute of Chemical Technology, Universität Leipzig, D

- Relationships between pore structure and material performance of cement-based materials subjected to chemical attack

M. Schwotzer, Institute of Functional Interfaces, KIT, Karlsruhe, D

- Characterizing the pore system of green shales from the Masty location (Czech Republic)

L. Ruppenthalová¹, J. Möllmer², A. Kolesnikov², H. Uhlig², ¹UGN - Institute of Geonics of the CAS, Ostrava, CZ, ²INC e.V. Leipzig, D

User Training with Certificate

Parallel to the lectures we offer user trainings for Mercury intrusion porosimetry, gas sorption and density measurements with Helium pycnometry.

For this training we provide official attendance certificates.

• Mercury Intrusion Porosimetry

L. Lucarelli, ThermoFisher Scientific, I

A. Schreiber, C. Minkley, POROTEC GmbH, D

- **Safe work with Mercury intrusion porosimetry**
- **Measurement of powders**
- **Analysis of porosimetry data and correct interpretation**
- **Standards: DIN ISO 15901-1, DIN 66133 alt**

• Gas Sorption

L. Lucarelli, ThermoFisher Scientific, I

A. Schreiber, M. Rückriem, POROTEC GmbH, D

- **Appropriate sample preparation for gas sorption**
- **Material dependent kinetics and sorption equilibrium**
- **Analysis of sorption data – appropriate choice of methods for micropore and mesopore analysis**
- **Standards: ISO 15901-2, 15901-3, DIN 66134 (BJH), DIN 66135 1-4, DIN 66138, DIN 66139, DIN ISO 9277 (BET)**

• Density Measurement with Helium Pycnometry

L. Lucarelli, ThermoFisher Scientific, I

A. Schreiber, C. Minkley, POROTEC GmbH, D

- **Calibration and sample preparation**
- **Measurement of solids, fines and gels**
- **Standards: ISO 12154, DIN 66137-3**

On request user meetings for Zeta potential and nanoparticle analysis will be offered.

Registration possible until November 2nd, 2018

Please send your registration to:

POROTEC GmbH
Niederhofheimer Straße 55a
D-65719 Hofheim
Tel.: +49 6192 2069030
Fax: +49 6192 2069035
e-mail: info@porotec.de

Schedule

Tuesday. Nov. 13th, 2018

Registration from 08:00 am

Begin 09:00am

Wednesday. Nov. 14th, 2018

End ca. 04:00pm

Conference Fee

The conference fee is

€ 400,- plus VAT.

Students Discount:

€ 99,- plus VAT.

Conference Proceedings

Every participant will receive the conference proceedings during registration.

Accommodation

ATTENTION: NEW WORKSHOP LOCATION

Room orders by phone or via internet directly

H+ Hotel Wiesbaden Niedernhausen

Address: Zum Grauen Stein 1,

65527 Niedernhausen

(Discount: „POROTEC Workshop“)

Phone: +49 6127 9010

<https://www.h-hotels.com/de/hplus/hotels/hplus-hotel-wiesbaden>

Travel

The workshop location is easily to reach by car or public transportation (S-Bahn).

Workshop Dinner

Tuesday, November 13th POROTEC invites all participants for a dinner.