

Conference Program & Show Info

FILTECH

October 22 – 24, 2019
Cologne – Germany

The Filtration Event
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Koelnmesse · Cologne · Germany

Plenary and Keynote Lectures...

... presented by leading experts

FILTECH 2019 Conference features over 200 technical papers, a Plenary Lecture and 4 Keynote Lectures presented by leading experts. Delegates profit from high-level knowledge transfer and learn about future trends and perspectives!



Digitalization of Centrifuges – Helpful or senseless?

Prof. Dr. Hermann Nirschl

Karlsruhe Institute of Technology (KIT)
Germany

During the last years digitalization was and is still a major topic in all companies of the process and machinery industry. Besides all business development procedures, the digitalization of processes seems to be a rather challenging task. Although in automotive or aviation industry the future of manufacturing ...



Enhancing Filter Media Performance during Industrial Gas Filtration

Prof. Arunangshu Mukhopadhyay

National Institute of Technology
India

The major challenge towards industrial gas filtration process is collection of finest particles by filter media with least energy and also achieving longest possible life of filter media. This leads to quite significant technological intervention for designing appropriate filter media as well as filtration system...



Air Quality Control & Aerosols

Dr.-Ing. Stefan Haep

IUTA - Institut für Energie- und Umwelttechnik
Germany

The control of gaseous and particulate emissions and immissions caused by industrial processes result in filter solutions typically qualified by standardized test methods. The control of non steady loads, typical for real life operating conditions, requires the redesign of filters and the development of advanced testing ...



Dewatering of Concentrates & Tailings – Large Scale Duties in the Mining Industry

Dr.-Ing. Götz Bickert

GBL Process Pty Ltd.
Australia

Thickening followed by vacuum or pressure filtration is usually applied for both, products (concentrates) and wastes (mine tailings) in huge quantities in the mining industry. While all three unit operations are long known and well understood, the scale but also the abrasiveness of the material still provides huge challenges...



Scientific Committee Chairmen

Dr. Harald Anlauf - Karlsruhe - Germany

Prof. Eberhard Schmidt - Wuppertal - Germany

Scientific Committee

Prof. Mônica Lopes Aguiar - São Carlos - Brazil

Dr. Harald Banzhaf - Ludwigsburg - Germany

Prof. Ching-Jung Chuang - Taoyuan - Taiwan

Prof. Kyung-Ju Choi - Seoul - Korea

Prof. Achim Dittler - Karlsruhe - Germany

Prof. Dr. Kunihiro Fukui - Hiroshima - Japan

Dr. Pascal Ginisty - Foulayronnes - France

Prof. Leon Gradon - Warsaw - Poland

Prof. Antti Häkkinen - Lappeenranta - Finland

Prof. Eiji Iritani - Nagoya - Japan

Prof. Chikao Kanaoka - Tsubata - Japan

Prof. Gerhard Kasper - Karlsruhe - Germany

Dr. Karsten Keller - Milford - USA

Ir. Hermanes Kleizen - Hengelo - Netherlands

Prof. Gernot Krammer - Graz - Austria

Dr. Thomas Laminger - Vienna - Austria

Dr. Martin Lehmann - Ludwigsburg - Germany

Prof. Markus Lehner - Leoben - Austria

Prof. Dietmar Lerche - Berlin - Germany

Prof. Woon-Fong Wallace Leung - Hong Kong - P.R. China

Prof. Richard Lydon - Haslingden - UK

Dr. Hisao Makino - Yokosuka - Japan

Prof. Gerd Mauschitz - Vienna - Austria

Prof. Arunangshu Mukhopadhyay - Jalandhar - India

Prof. Ioannis Nicolaou - Cyprus

Prof. Hermann Nirschl - Karlsruhe - Germany

Dr. Thomas Peters - Neuss - Germany

Prof. Urs Peuker - Freiberg - Germany

Dr. Graham Rideal - Waverton - UK

Prof. Sandra Mara Santana Rocha - Espirito Santo - Brazil

Prof. Peter Scales - Parkville - Australia

Dr. Christine Sun - Clarksville - USA

Prof. Hans-Joachim Schmid - Paderborn - Germany

Dr. Anthony Stickland - Melbourne - Australia

Prof. Hans Theliander - Gothenburg - Sweden

Prof. Dominique Thomas - Nancy - France

Prof. Bhaskar N. Thorat - Mumbai - India

Prof. Paolo Tronville - Torino - Italy

Prof. Kuo-Lun Tung - Taipei - Taiwan

Prof. Eugène Vorobiev - Compiègne - France

Dr. Matthias Waldenmaier - Kaiserslautern - Germany



Plenary Lecture

Centrifugation – Key Technology for Solid/Liquid/Liquid Separation

Dr. Harald Anlauf

Karlsruhe Institute of Technology (KIT) / Germany

Particle/liquid separation can be focused on very different tasks like thickening, purification, fractionation, sorting, extraction or deliquoring. The separation has to be mastered for wide ranges of particle size and shape, specific solid and liquid weight, slurry concentration, chemical composition and rheology, flow rate, process and technical boundary conditions and last but not least demands on the separation results. To solve all the separation problems beside centrifuges many physically different methods and in total more than 2000 different apparatuses and machines are available at present, but always new developments can be observed...



Session Overview

Tuesday, 22.10.2019

Monday 21.10.2019 09:00-18:00h

Short Course I · Solid/Liquid Separation

Short Course II · Fine Dust Separation

08:30	Registration				
10:15	Opening Session				
10:45 12:00	PL	Plenary Lecture – Dr. Harald Anlauf, Academic Director – Karlsruhe Institute of Technology (KIT) / Germany Centrifugation – Key technology for solid/liquid/liquid separation			
Lunch – Fair					
	Room 1A – 1 st floor	Room 1B – 1 st floor	Room 2 – 2 nd floor	Room 4A – 4 th floor	Room 4B – 4 th floor
13:00 14:15	K1 Digitalization of Centrifuges – Helpful or senseless?	L1 Particle and Slurry Characterization	M1 Membrane Design and Characterization	G1 Air Filtration	F1 Enhancement of Filter Media by Surface Treatment
Coffee Break – Fair					
14:45 16:00	K2 Enhancing filter media performance during industrial gas filtration	L2 Particle, Slurry and Cake Characterization	M2 Micro and Ultra Filtration	G2 Cabin Air Filters	F2 Progress in Wire Mesh Development
Coffee Break – Fair					
16:45 18:00	L3 Cake Filtration - Influences on the Cake Structure	L4 Wet Particle Fractionation	F3 Advanced Filter Media Developments and Manufacturing Methods	G3 Gas and Particle Separation	G4 Mist and Droplet Separation
18:00	Welcome Reception				

Wednesday, 23.10.2019

	Room 1A – 1st floor	Room 1B – 1st floor	Room 2 – 2nd floor	Room 4A – 4th floor	Room 4B – 4th floor
09:00 10:15	L5 Cake Filtration - Characterization, Modelling, Scale-up	G5 Surface Filtration I	M3 Separation of Complex Systems	F4 Quality Control and Pore Size Analysis of Filter Media	F5 Bio-Inspired Innovation of Separation
Coffee Break – Fair					
10:45 12:00	K3 Air Quality Control & Aerosols	L6 Cake Filtration - Characterization, Modelling, Simulation	M4 Ceramic Membranes and Fouling	G6 Surface Filtration II	F6 Performance Improvements of Nonwovens
Lunch – Fair					
13:00 14:15	K4 Dewatering of concentrates & tailings in the mining industry	L7 Cake Filtration - Particle Washing	M5 Process and Waste Water Treatment	G7 Filter Test Systems I	F7 Advanced Composite Fiber Materials
Coffee Break – Fair					
14:45 16:00	L8 Short Oral	L9 Short Oral	M6 Short Oral	G8 Short Oral	G9 Short Oral
16:00 16:45	Poster Presentation	Poster Presentation	Poster Presentation	Poster Presentation	Poster Presentation
16:45 18:00	L10 Centrifugal Sedimentation Decanter Centrifuges	L11 Centrifugal Cake Filtration	F8 Micro and Nanofiltration Media	G10 Filter Test Systems II	G11 Modelling and Simulation

Thursday, 24.10.2019

	Room 1A – 1st floor	Room 1B – 1st floor	Room 2 – 2nd floor	Room 4A – 4th floor	Room 4B – 4th floor
09:00 10:15	L12 Cake Filtration - Continuous Vacuum Filters	L13 Depth Filtration and Adsorption - Granular Beds	F9 Filter Media - Modelling, Artificial Intelligence, Machine Learning	G12 Measurement Techniques I	G13 Filter Element Design
Coffee Break – Fair					
10:45 12:00	L14 Cake Filtration - Enhancement of Filter Presses	L15 Depth Filtration and Adsorption - Modelling and Simulation	F10 Numerical Analysis of Filter Media Pore Size and Structure	G14 Measurement Techniques II	G15 Filter Medium Design
Lunch – Fair					
13:00 14:15	L16 Dewaterability of Sludges	L17 Backwashing Filtration	L18 Froth Flotation and Liquid/Gas Separation	G16 Particles for Filter Testing	F11 Numerical Methods for Filter Media Characterization & Improvement
Coffee Break – Fair					
	Room 1A – 1st floor	Room 2A – 1st floor	Room 4A – 4th floor	Room 4B – 4th floor	
14:45 16:00	L19 Liquid/Liquid Separation	L20 Enhancement of Backwashing and Cake Filtration Performance	G17 Monitoring and Control	F12 Advanced Filter Media for Gas Filtration	

Programme is subject to amendments. Up-to-date Programme is available at www.Filtech.de

FILTECH 2019 · Conference Programme

Tuesday, October 22, 2019

08:30-10:15 Registration

10:15 - 10:45 Opening Session

PL Plenary Lecture 10:45 room 1A
12:00

Centrifugation – Key technology for solid/liquid/liquid separation, Dr. Harald Anlauf, Karlsruhe Institute of Technology (KIT), Germany

K1 Keynote Lecture 1 13:00 room 1A
14:15 Session Chair: Harald Anlauf

Digitalization of Centrifuges – Helpful or senseless?, Prof. Dr. Hermann Nirschl, Karlsruhe Institute of Technology (KIT), Germany

L1 Particle and Slurry Characterization 13:00 room 1B
14:15 Session Chair: Anthony Stickland

Identification and size measurement of plastic microparticles, R. Ben Aïm*, N. Petillon, IFTS - Institute of Filtration & Techniques of Separation; C. Causserand, University of Toulouse, France; I. Robertson, Perkin Elmer Ltd, UK

Measuring solid/liquid separation of viscous polydisperse suspensions at gravity and in centrifugal field, T. Sobisch*, LUM GmbH, D. Lerche, LUM GmbH/Dr. Lerche KG, T. Koch, Kronos International Inc, Germany

Off- and in-line monitoring of processed milk by MRS-Technology, P. Dumeier, D. Lerche*, LUM GmbH; K.-H. Mittenzwey, G. Sinn, Optosphere Spectroscopy GbR, Germany

M1 Membrane Design and Characterization 13:00 room 2
14:15 Session Chair: Allan Kuo-Lun Tung

High-pressure operation of spiral wound membrane elements: The relevant aspect of permeate channel fluid dynamics, C. Kleffner*, G. Braun, University of Applied Science Cologne; S. Antonyuk, Technische Universität Kaiserslautern, Germany

Flexible polymeric filters with low tortuosity produced in a roll to roll process, L.C. Sørvik*, M.-A. Raux, G. Osborg, H. Hemmen, Condalign AS, Norway

The effect of membrane structure prepared from carboxymethyl cellulose and cellulose nanofibrils for filtration and biochromatographic separation, V. Kokol*, S. Gorgieva, V. Vivod, S. Vajnhandl, University of Maribor; T. Simcic, U. Cernigoj, BIA Separations d.o.o., Slovenia

G1 Air Filtration 13:00 room 4A
14:15 Session Chair: Dominique Thomas

Back cleanable air filter elements for critical dust systems – US HEPA, IFA H and EN1822 HEPA, M. Wilkens*, Hengst SE, Germany

Energy efficient media solution for eurovent A+ rated filters, C. Desquilles*, P. Blanckaert, Lydall Performance Materials SAS, France; R. Bharadwaj, Lydall Performance Materials, USA

Filtration performance of PAN fiber produced by centrifugal spinning using DMSO and DMF as solvent, A.I.P. Salussoglia*, M.L. Aguiar, Federal University of São Carlos; E.H. Tanabe, Federal University of Santa Maria, Brasil

F1 Enhancement of Filter Media by Surface Treatment 13:00 room 4B
14:15 Session Chair: Christine Sun

Advances in plasma deposition of functional nanocoatings for filtration applications, F. Legein*, S. Loulidi, Europlasma NV, Belgium

Filter cloths: Bluetes anti-abrasion resin, D. De Angelis*, L.I. Balzaretti, M. Motta, M. Reginato, Testori S.p.A., Italy

Surface modification of RO membrane by grafting hydrophilic switchable polymer brushes, M.A. Abbas, N.M. Ahmad*, National University of Sciences and Technology (NUST), Pakistan

K2 Keynote Lecture 2 14:45 room 1A
16:00 Session Chair: Eberhard Schmidt

Enhancing filter media performance during industrial gas filtration, Prof. Dr. Arunangshu Mukhopadhyay, National Institute of Technology, Jalandhar, India

L2 Particle, Slurry and Cake Characterization 14:45 room 1B
16:00 Session Chair: Dietmar Lerche

The effect of normal load on the shear yield stress of suspensions, A.D. Stickland*, E. Höfgen, The University of Melbourne, Australia

Monitoring technique for mechanical expression using electrokinetic response caused by liquid flow through filter cake, M. Iwata*, K. Shimoizu, T. Iwasakia, Osaka Prefecture University, Japan; M.S. Jami, Islamic University Malaysia, Malaysia

The influence of bimodal particle systems on filter cake structures using micro tomography, E. Löwer*, F. Pfaff, T. Leißner, U.A. Peuker, Technical University Bergakademie Freiberg, Germany

M2 Micro and Ultra Filtration 14:45 room 2
16:00 Session Chair: Christine Sun

Interaction between polysaccharide and protein on membrane fouling caused by microbial metabolite, N. Katagiri*, R. Matsuyama, E. Iritani, Nagoya University, Japan

Effect of aeration on hollow fiber microfiltration characteristics of activated sludge, K. Kawasaki*, H. Hosokawa, A. Minakuchi, Ehime University, Japan

Influence of oil droplet size distribution on the fouling mechanisms of UF/MF membranes during filtration of oil nano-emulsions, H. Idrees*, M. Abo Zohri, I. ElSherbiny, S. Panglisch, University Duisburg-Essen (UDE), Germany

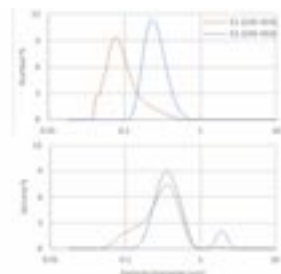


Figure 2: The droplet size distribution of E1 and E2

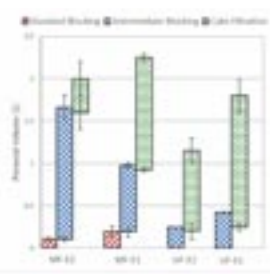


Figure 3: Fouling chronological evolution during the filtration of E1 and E2 using PES-MF (0.4 µm) and UF (0.02 µm) membranes

G2 Cabin Air Filters 14:45 room 4A
16:00 Session Chair: Martin Lehmann

Cabin air quality and energy savings in electric vehicles by using a smart filtration system, M. Lesage*, D. Chalet, Ecole Centrale de Nantes; L. del Fabbro, E. Le Nain, Renault SAS, J. Migaud*, MANN+HUMMEL France; D. Ebnet, MANN+HUMMEL GmbH, Germany

Test of cabin filters, S. Holfeld*, R. Heidenreich, Institute of Air Handling and Refrigeration (ILK), Germany

Maximising comfort and minimising pollutant exposure in the vehicle cabin using the ventilation system, T. Cardy*, N. Molden, Business Development Manager, Emissions Analytics Ltd, UK

F2 Progress in Wire Mesh Development 14:45 room 4B Session Chair: Graham Rideal 16:00

New developments in woven wire filtration media: 3D high performance filter cloth; Woven wire mesh combinations in solid-liquid separation, F. Edelmeier*, F. Meyer, Haver & Boecker OHG, Germany

Energy reducing polymeric filtration mesh, J. Kidwell, J. Ferrer, J. Kirk*, SWM International, USA

Multipore™: The state-of-the-art wire mesh, S. Vandendijk*, Parker Hannifin Purolator, Belgium

L3 Cake Filtration - Influences on the Cake Structure 16:45 room 1A Session Chair: Urs Peuker 18:00

Investigation of filter cake characteristics regarding particle shape and wettability, M. Brockmann*, T. Leißner, U. A. Peuker, Technical University Bergakademie Freiberg, Germany

Understanding the role of cake structure in the filtration of needle-like crystals in the pharmaceutical industry, G. Perini*, C. Avendaño, T. Vetter, University of Manchester; W. Hicks, A.R. Parsons, AstraZeneca, UK

Evaluation of process strategies to homogenize the lautering filter cake structure and enhance wort production, P.M. Bandelt Riess*, M. Kuhn, H. Briesen, P. Först, Technical University of Munich, Germany

L4 Wet Particle Fractionation 16:45 room 1B Session Chair: Hermann Nirschl 18:00

Centrifugal Classification: In-situ Method to determine Separation Efficiency by UV-VIS Spectroscopy, M. Winkler*, H. Nirschl, Karlsruhe Institute of Technology (KIT), Germany

Automation of particle classification in a tubular centrifuge based on a dynamic short-cut process model, T. Sinn*, M. Gleiß, H. Nirschl, Karlsruhe Institute of Technology (KIT), Germany

Fractionating of finest particles using the crossflow filtration, P. Lösch*, V. Puderbach, K. Nikolaus, S. Antonyuk, Technische Universität Kaiserslautern, Germany

F3 Advanced Filter Media Developments and Manufacturing Methods 14:45 room 2 Chair: Harald Anlauf 16:00

High speed laser drilling of precise micro and nano holes in metallic surface filters, T. Barthels*, H. Westergelting, M. Reininghaus, Fraunhofer Institute for Laser Technology ILT, Germany

Augmented filter media development by virtual prototype optimization, T. Gose*, A. Kilian, H. Banzhaf, F. Keller, R. Bernewitz, MANN+HUMMEL GmbH, Germany

Exentis Group AG: Industrialized additive manufacturing, S. Vasic*, Exentis Group AG, Germany

G3 Gas and Particle Separation 16:45 room 4A Session Chair: Gerhard Kasper 18:00

Simultaneous dust and noxious gas separation in an entrained-flow adsorber on surface filters, F. Prill, S. Schiller, H.-J. Schmid*, University of Paderborn; M. König, I. Hartmann, DBFZ Deutsches Biomasseforschungszentrum gGmbH, Germany

A new PM2.5 assessment for a gas-liquid cross-flow array system as dust separator, W. Wei*, H. Yu, J. Zhu, Sichuan University, China; T. Laming, W. Höflinger, Technical University of Vienna, Austria

Influence of the deliquescence and efflorescence of hygroscopic salt particles on the performance of surface filters, D. Horst*, Q. Zhang, E. Schmidt, University of Wuppertal, Germany

G4 Mist and Droplet Separation 16:45 room 4B Session Chair: Eberhard Schmidt 18:00

Characterization of performance relevant media properties in oil mist filtration, T. Penner*, J. Meyer, A. Dittler, Karlsruhe Institute of Technology (KIT), W. Heikamp, BinNova Microfiltration GmbH, Germany

Reducing pressure drop of coalescence filtration media by patterned modification of wettability, M. Wittmar*, W. Mölter-Siemens, K. Varzandeh, C. Asbach, Institute for Energy and Environmental Technology e.V. (IUTA); L. Tsarkova, T. Bahners, B. Gerbert, DTNW - Deutsches Textilforschungszentrum Nord-West gGmbH, Germany

New physical principle of dilution system for crankcase ventilation filter testing, S. Schütz*, M. Schmidt, PALAS GmbH, Germany

Wednesday, October 23, 2019

L5 Cake Filtration - Characterization, Modelling, Scale-up 09:00 room 1A Chair: Anthony Stickland 10:15

The effect of particle sedimentation on the performance of pressure filters, I.S. Fragkopoulou, F.L. Muller, University of Leeds; N.A. Mitchell, G. Jimeno*, Process Systems Enterprise (PSE) Ltd.; C.S. MacLeod, AstraZeneca; S. Mathew, Pfizer, UK

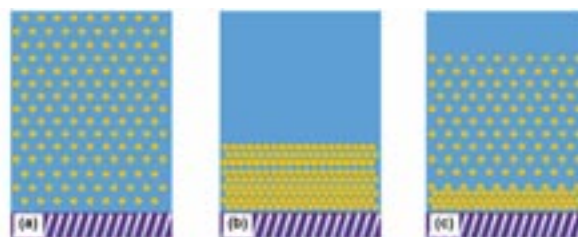


Figure 2: Schematic representation of slurry in systems with (a) no crystal sedimentation prior to filtration, (b) entire crystal sedimentation prior to filtration and (c) partial crystal sedimentation prior to filtration.

FILOS – Module I: The novel software for the reliable analysis of filtration test data and suspension characterization including washing and deliquoring of filter cakes, I. Nicolaou*, NIKIFOS Ltd, Cyprus

FILOS – Module II: The novel software for the reliable selection, performance prediction and optimization of filters for the cake forming filtration of suspensions, I. Nicolaou*, NIKIFOS Ltd, Cyprus

G5 Surface Filtration I 09:00 room 1B Session Chair: Qian Zhang 10:15

Cleanable filter media go close to zero emission, H.-J. Imminger*, P. Krug, BWF Tec GmbH & Co. KG, Germany

Investigating the cleaning efficiency of filters clogged with metallic nanoparticles, N. Khirouni*, D. Berner, Institut National de Recherche et de Sécurité (INRS); A. Charvet, D. Thomas, Lorraine University, France

New test method for bag house filters, R. Heidenreich*, A. Böhme, S. Herrmann, Institute of Air Handling and Refrigeration (ILK), Germany

Discover the Future of Filtration & Separation

M3

Separation of Complex Systems

Session Chair: Thomas Peters

09:00 room
10:15 **2**

Technical extraction of EPS from streptococcus thermophilus by dynamic cross-flow filtration on a pilot scale, F. Häffele*, H. Nirschl, Karlsruhe Institute of Technology (KIT); J. Bulla, G. Surber, D. Jaros, H. Rohm, Technical University Dresden (TUD), Germany

Bagasse extracts fractionation by combination of membrane and chromatographic technologies, P.-Y. Pontalier*, V. Oriez, J. Peydecastaing, ENSIACET, France

Sustainable production in the metal industry – Separation of valuable components from acidic effluents, F. Rögener*, Technical University Cologne, Germany; J. Lednova, M. Andrianova, Polytechnical University Peter the Great, Russia

F4

Quality Control and Pore Size Analysis of Filter Media

Session Chair: Antti Häkkinen

09:00 room
10:15 **4A**

Optical quality control of filter media: MIDA X makes hidden defects visible, H. Oerley*, Dr. Schenk GmbH, Germany

Measuring the maximum pore size of a filter, choosing the most statistically robust parameter, K.G. Brocklehurst, G.R. Rideal*, Whitehouse Scientific Ltd, UK

Characterisation of micron pore size filter media comparison of methods, G.R. Rideal*, Whitehouse Scientific Ltd, UK; A. Häkkinen, M. Ängslavä, Lappeenranta University of Technology (LUT), Finland

F5

Bio-Inspired Innovation of Separation

Session Chair: Harald Anlauf

09:00 room
10:15 **4B**

Bionics in application: Superhydrophobic functional textiles for the removal of oil contamination from water, I. Noll*, M. Akdere, T. Gries, RWTH Aachen University; M. Mail, W. Barthlott, University of Bonn, Germany

Bio-inspired separation - Formulation of an innovation model and ideation tool to boost innovation in the sector of separation technology, A. Bianciardi*, Politecnico di Milano, Italy

A biomimetic approach for separating microplastics from water, L. Hamann*, Fraunhofer Institute for Environmental, Safety, and Energy Technology UMSICHT, Germany

K3

Keynote Lecture 3

Session Chair: Eberhard Schmidt

10:45 room
12:00 **1A**

Air Quality Control & Aerosols, Dr.-Ing. Stefan Haep, Institute for Energy and Environmental Technology e.V. (IUTA), Germany

L6

Cake Filtration - Characterization, Modelling, Simulation

Chair: Urs Peuker

10:45 room
12:00 **1B**

Network model of porous media - Review of old ideas with new methods, S. Esser*, E. Löwer, U.A. Peuker, Technical University Bergakademie Freiberg, Germany

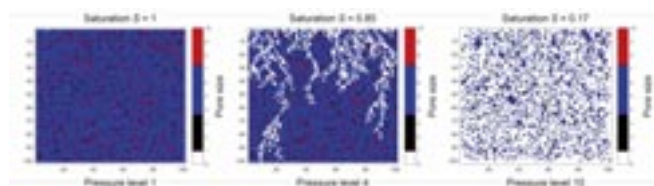


Figure 1: Dewatering equilibrium at different applied pressure levels

Numerical and experimental investigation of filter cake formation during solid-liquid separation by resolved CFD-DEM coupling, V. Puderbach*, S. Antonyuk, Technische Universität Kaiserslautern; K. Schmidt, IT for Engineering (it4e) GmbH, Germany

Simulation based analysis of the multi-stage filter cake washing, T. Sprott*, A. Brückner, B. Hoffner, University of Applied Sciences Mannheim, Germany

M4

Ceramic Membranes and Fouling

Session Chair: Qian Zhang

10:45 room
12:00 **2**

Ceramic membrane system for drinking water application operating with high flux, M. Kaschek, M. Sartor*, CERAFILTEC Germany GmbH Blue Filtration, Germany; K.G. Gabriel, CERAFILTEC FZCO, Dubai

Improved fouling resistance of ceramic membranes using organic/inorganic modification for water purification, J. Lee*, J.-H. Ha, I.-H. Song, Korea Institute of Materials Science (KIMS), Korea

Impact of insufficient membrane and filter properties: Fouling and functionalization, B. Arlt*, Anton Paar Germany GmbH, Germany; T. Luxbacher, Anton Paar GmbH, Austria

G6

Surface Filtration II

Session Chair: Monica Aguiar

10:45 room
12:00 **4A**

A comparative investigation of soluble filter cakes upon contact with liquid droplets, A. D. Schwarz*, J. Meyer, A. Dittler, Karlsruhe Institute of Technology (KIT), Germany

Measurement of the porosity of spherical particle deposit formed by filtration: Discussion on the Peclet number effect, J. Nuvoli*, S. Bourrous, F.-X. Ouf, D. Thomas, Institut de Radioprotection et de Sûreté Nucléaire (IRSN), France

Pressure drop evolution during dust loading of hollow-fiber membranes, P. Bulejko*, O. Křištof, T. Sverák, Brno University of Technology; M. Dohnal, Zena Membranes s.r.o., Czech Republic

F6

Performance Improvements of Nonwovens

Session Chair: Kyung-Ju Choi

10:45 room
12:00 **4B**

New development in bag filtration, C. Rodewald, D. Steinberger*, PALL GmbH, Germany

Combinatorial optimization of double-layered filtration media for higher performance, J.R. Gorle*, Parker Hannifin, Finland

Flow resistance evaluation through nonwoven filter media, K.-J. Choi*, Clean & Science Co., Ltd., USA

K4

Keynote Lecture 4

Session Chair: Roger Ben Aim

13:00 room
14:15 **1A**

Dewatering of concentrates and tailings – Large scale duties in the mining industry, Dr.-Ing. Götz Bickert, GBL Process Pty Ltd, Australia

L7

Cake Filtration – Particle Washing

Session Chair: Ioannis Nicolaou

13:00 room
14:15 **1B**

Washing performance prediction of horizontal vacuum belt filters for different wash modes, G. Krammer*, Graz University of Technology; R. Raberger, Andritz AG, Austria

Characterization and simulation of displacement washing processes in filter cakes, B. Hoffner*, University of Applied Sciences Mannheim, Germany

Dewatering and imbibition effects on the multi-stage cake washing, A. Brückner*, T. Sprott, B. Hoffner, University of Applied Sciences Mannheim, Germany

M5

Process and Waste Water Treatment

Session Chair: Wilhelm Höflinger

 13:00 room
14:15 **2**

Recent developments in industrial wastewater treatment by aerobic and anaerobic Membrane Bioreactors, F. Rögener*, M.P. Betz, L. Papendorf, S. Steinhauser, Technical University Cologne, Germany

Membrane bioreactor as polishing step in the treatment of galvanic wastewater, B. Mayr*, T. Garstenauer, EnviCare Engineering GmbH, Austria

Cost-optimized sustainable water management in the mining industry based on membrane processes, T. Peters*, Membrane Consulting, Germany

G7

Filter Test Systems I

Session Chair: Thomas Peters

 13:00 room
14:15 **4A**

Filter media testing in accordance with ISO 16890, M. K. Schmidt*, PALAS GmbH, Germany

Two years of filter testing experiences according to new ISO 16890, C. Kappelt*, A. Rudolph, C. Peters, S. Große, Topas GmbH, Germany

Aspects of air filter testing: dust loading, M. Stillwell*, Particle Technology Ltd, UK

F7

Advanced Composite Fiber Materials

Session Chair: Graham Rideal

 13:00 room
14:15 **4B**

Sinterflo® FMC (fibre metal composite) – Development and application, B. Allbutt*, Porvair Filtration Group Ltd, UK; A. Goux*, Bekaert Fiber Technologies, Belgium

The advantages of metal fiber media for aircraft hydraulic filtration, J. De Baerdemaeker, A. Goux, M. Van Hooreweder*, J. Mothersbaugh, Bekaert Fiber Technologies, Belgium

Methods to increase the filtration performance of metal woven wire cloths, M. Müller*, Spörl KG, Germany

L8

Short Oral + Poster Presentation

Session Chair: Wilhelm Höflinger

 14:45 room
16:00 **1A**

Characterization and Simulation of Porous Structures

Combined porous mesh metals for filters and capillary fencing devices, V. A. Devisilov*, Yu. M. Novikov, V.A. Bol'shakov, Bauman Moscow State Technical University, Russia,

Geometrical model of the porous structure of the permeable material and the new experimental method of determining its structural characteristics, V. A. Devisilov*, A.L. Sintsov, E. Yu. Sharai, Bauman Moscow State Technical University, Russia

Characterization of Porous Materials to Meet Regulatory Demands

Addressing liquid filtration regulatory complexity with HACCP, F. Lybrand*, C. Rich, T. Vest, Hollingsworth and Vose Company, USA

Depth Filtration and Adsorption

Metal porous filter development using additive manufacturing, N. Burns*, D. Travis, L. Geekie, A. Molyneux, Croft Additive Manufacturing Ltd; M. Burns, Croft Filters Ltd, UK

Design of a multi-purpose fuel filter system to better understand the challenges of biodiesel filtration, B. Csontos*, H. Bernemyr, A. Christiansen Erlandsson, KTH Royal Institute of Technologies; M. Pach, H. Hittig, Scania CV AB, Sweden

A probabilistic-statistical model of change in particle size distribution in fine filters, A.N. Grechushkin*, V.A. Lvov, Bauman Moscow State Technical University, Russia

Adsorption of humic acid from aqueous solution onto Fe₃O₄ magnetite: effect of temperature, M.A. Zulfikar*, A. Rizqi Utami, M. Yudhistira Azis, H. Setiyanto, Bandung Institute of Technology, Indonesia

L9

Short Oral + Poster Presentation

Session Chair: Harald Anlauf

 14:45 room
16:00 **1B**

Backwashing filters

HETA smart filtration 4.0, H. Hensel*, HETA Verfahrenstechnik GmbH, Germany

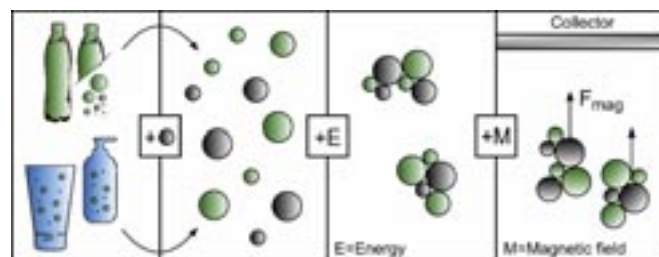
Self Cleaning Filters

Filtering of high solids concentration media using complex powerful to the flow, E.Y. Sharai*, V.A. Devisilov, Bauman Moscow State Technical University, Russia

Simulation of solid particle separation in self-cleaning filter with dynamic filtration, E.Y. Sharai*, V.A. Devisilov, Bauman Moscow State Technical University, Russia

Magnetic Separation

Applied colloidal aggregation: Separation of fine polymer particles from dilute suspensions by magnetic seeded filtration (Microplastics), F. Rhein*, H. Nirschl, Karlsruhe Institute of Technology (KIT), Germany



Electrochemical Water Treatment

Electrodegradation of methylene blue using Ce(IV) mediated electrochemical oxidation: Effects of supporting electrolyte, potential oxidation and degradation time, H. Setiyanto*, F.M. Sari, M.A. Zulfikar, Bandung Institute of Technology; V. Saraswaty, Indonesian Institute of Sciences; N. Mufti, State University of Malang, Indonesia

Separation of crude oil from crude oil contaminated water using bio-waste-waste polythene composite, K.A. Ibe*, E.E. Elemike, B.C. Okoro, Federal University of Petroleum Resources Effurun, Nigeria

M6

Short Oral + Poster Presentation

Session Chair: Thomas Peters

 14:45 room
16:00 **2**

Effect of ethanol concentration on filter cake characteristics in micro-filtration of yeast suspension, N. Katagiri*, K. Tomimatsu, E. Iritani, Nagoya University, Japan

Combination of ultrafiltration (UF) and powdered activated carbon (PAC) to remove micropollutants, antibiotic resistant bacteria and phosphorus from wastewater, M. Werner*, MICRODYN-NADIR GmbH, Germany

Microsand cross flow filtration in cooling towers water circuit – a sustainable approach for hvac systems, S. Roel Backes*, Evoqua Water Technologies GmbH, Germany

Discover the Future of Filtration & Separation

Application of antifouling filter media based on nanofibres in liquid filtration, I. Vincent*, D. Kimmer, L. Lovecka, M. Kovarova, L. Musilova, D. Vesela, Tomas Bata University, Czech Republic

Integration of functional transmembrane proteins into a membrane for nanofiltration, M. Schwieters*, M. Mathieu, U. Glebe, A. Böker, Fraunhofer Institute for Applied Polymer Research IAP, Germany

Measuring methods for nano filtration membranes and filter materials, X. Puntigam, M. Kalmutzki, P. Pavlov, B. Arlt*, Anton Paar Germany GmbH, Germany

Effect of spacer orientation on the performance of direct contact membrane distillation, Y. Taamneh*, Jordan University of Science and Technology, Jordan

Analytical photo-centrifugal filtration (ACF): Membrane resistance and filterability, S. Boldt, D. Lerche*, LUM GmbH, Berlin, Germany; M. Loginov, UMR STLO, INRA-Agrocampus Ouest, France

Controlling specific properties of paper wet lays for air filtration by means of hydro-entanglement, R. Heidenreich*, Institute of Air Handling and Refrigeration (ILK); T. Schulze, Thüringisches Institut für Textil- und Kunststoff-Forschung e.V.; F. Gebauer, Papiertechnische Stiftung (PTS), Germany

Deodorizing filters containing visible light photocatalysts for air purifiers, Y. Lee*, H. Kim, D. Lee, LG Hausys R&D Center, Korea

Evaluation of filtration performance of filters with nanofibers and HEPA, A.I. P. Salussoglia*, V. G. Guerra, M.L. Aguiar, Federal University of São Carlos, Brazil

Efficiency of collection of particulate matter and maximum pressure drop of precoating, B.K.S.A. Andrade*, M.L. Aguiar, Federal University of São Carlos; R. Sartim, Federal University of Espírito Santo, Brazil

Collection efficiency of a bag after 3 years of use in a bag filter, C.R. de Lacerda, B.K.S.A. Andrade*, M.L. Aguiar, Federal University of São Carlos; R. Sartim, ArcelorMittal Global R&D, Brazil

Effect of the temperature on the degradation of polyphenylene sulfide non-woven bag-filter media by NO₂ gas with a continuous-flow exposure method, K. Fukui*, K. Ito, M.I.F. Rozy, T. Fukasawa, T. Ishigami, Hiroshima University, Japan

Modelling of the mechanical aging behaviour of PLA-based nonwovens and monofilaments under filter application-relevant conditions, C. Schippers, L. Tsarkova, Deutsches Textilforschungszentrum Nord-West gGmbH (DTNW); J. S. Gutmann, University Duisburg-Essen (UDE); L. Sinowzik*, R. Taubner, Saxon Textile Research Institute (STFI), Germany

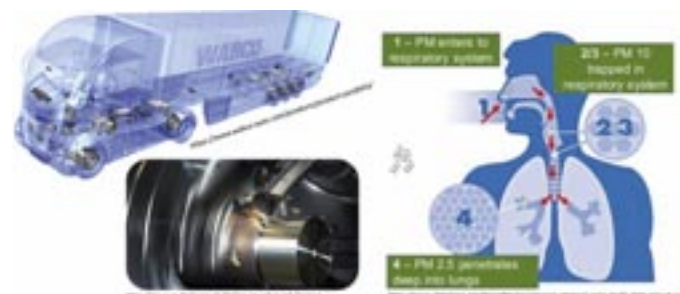
Experimental study on the preparation of ceramic fiber filter element for hot gas filtration, L. Miao*, Z. Ji, X. Wu, Z. Liu, J. Lu, L. Cong, China University of Petroleum (Beijing), China

Production and characterization of filter media obtained by electrospinning for applications in air filtration, D.P.F. Bonfim, V.G. Guerra, M.L. Aguiar*, Federal University of São Carlos, Brazil

Powder sampling with a pressure port of differential pressure gauge on the high pressure natural gas filter, X. Song*, X. Wu, C. Chang, S. Liu, D. Wang, Z. Ji, China University of Petroleum, China

Development and performance test of MIL-88 based filter structure using electrophoretic deposition, J.S. Lee*, J.H. Lee, S.H. Lim, Kookmin University, Korea

Macro-scale simulation of fibrous liquid aerosol filters, J. Niessner*, A. Baumann, D. Hoch, Heilbronn University of Applied Sciences, Germany



Micro-scale simulation of fibrous liquid aerosol filters, D. Hoch*, A. Baumann, J. Niessner, Heilbronn University of Applied Sciences, Germany

G8

Short Oral + Poster Presentation

Session Chair: Jörg Meyer

14:45 room
16:00 4A

Simulation and experiments on the cake formation in dust filtration with fabric filters, Q. Zhang*, D. Horst, E. Schmidt, University of Wuppertal, Germany

Experiments on the rearrangement behaviour of dust in wall flow filters, S. Jüttermann*, M. Kaul, E. Schmidt, University of Wuppertal, Germany

Investigation of the filtration kinetics of depth filter considering tomographic data, K. Hoppe*, Anhalt University of Applied Sciences; R. Zielke, L. Wischemann, G. Schaldach, W. Tillmann, M. Thommes, D. Pieloth, Dortmund University; D. Renschen, DMT GmbH & Co.KG, Germany

A new set-up for characterisation of particle and agglomerate detachment from an elastic single fibre exposed to air flow at low velocity, L. Poggemann*, F. Klingel, J. Meyer, A. Dittler, Karlsruhe Institute of Technology (KIT), Germany

Experimental characterization of reactive particle structure re-arrangement and detachment from a single fibre exposed to hot air flow, J. Zoller*, J. Meyer, A. Dittler, Karlsruhe Institute of Technology (KIT), Germany

Round robin test to evaluate the test method according to ISO 16890 – Air filters for general ventilation, T. Schuldt*, F. Schmidt, University Duisburg-Essen (UDE); E. Däuber, T. Engelke, Institute for Energy and Environmental Technology e.V. (IUTA), Germany

Generation and characterisation of reactive and inert aerosols, J. Thieringer*, H. Werling, J. Meyer, A. Dittler, Karlsruhe Institute of Technology (KIT), Germany

Characterization of an electrostatically charged water spray for reducing fine dust emissions, M. Zillgitt*, E. Schmidt, University of Wuppertal, Germany

Experimental methods in dust emission prediction, N. Schwindt*, E. Schmidt, University of Wuppertal, Germany

Industrial tests of filter bags "3DESA filtrpatron" with increased filtering area, V.V. Chekalov*, DESA Co. Ltd., Russia

Dust filtration, removing volatile organic compounds of waste tire recycle process, U. Kohowala*, Sigma Technologies, Sri Lanka

G9

Short Oral + Poster Presentation

Session Chair: Gerd Mauschwitz

14:45 room
16:00 4B

Experimental assessment of deposition of synthetic fibrous dust within the ductwork of residential ventilation systems, N. Alessandria, S. Sedlar, G. Mauschwitz, T. Laming*, Technical University of Vienna; A. Svec, Fa. Adalbert Svec, Germany

L10

Centrifugal Sedimentation - Decanter Centrifuges

Session Chair: Harald Anlauf

16:45 room
18:00 1A

About dynamic modeling and process simulation of solid bowl centrifuges, M. Gleiß*, H. Nirschl, Karlsruhe Institute of Technology (KIT), Germany

Dynamic simulation of mechanical dewatering of compressible cake in decanter centrifuges, P. Meneskloú*, M. Gleiß, H. Nirschl, Karlsruhe Institute of Technology (KIT), Germany

L11

Centrifugal Cake Filtration

Session Chair: Karsten Keller

16:45 room
18:00 1B

The Krauss-Maffei peeler centrifuge with pneumatic cake discharge, G. Grim*, ANDRITZ KMPT GmbH, Germany

Determining the filtration properties of different protein crystals in the centrifugal field using low volume samples, B. Radel*, T.H. Nguyen, H. Nirschl, Karlsruhe Institute of Technology (KIT), Germany

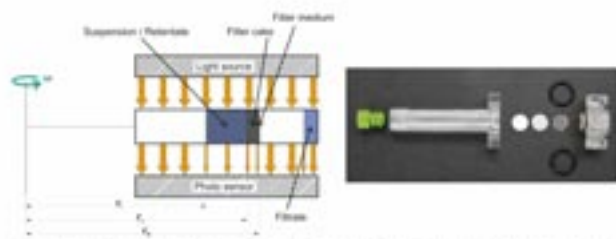


Figure 2: Left: schematic drawing of the filtration cell; right: photograph of the 3D printed filtration cuvette. (Radel et al., 2019)

CENTRISTAR - A novel software for filter centrifuges, I. Nicolaou*, NIKIFOS Ltd, Cyprus

F8

Micro and Nanofiltration Media

Session Chair: Christine Sun

16:45 room
18:00 2

Some aspects of application nanostructured filter media in air and water filtration, D. Kimmer*, I. Vincent, L. Lovecka, M. Kovarova, L. Musilova, Tomas Bata University; J. Ondracek, Institute of Chemical Process Fundamentals of the CAS, v. v. i., Czech Republic

Low-cost porous ceramic filters for potential microfiltration and ultrafiltration applications, J.-H. Ha*, J. Lee, I.-H. Song, Korea Institute of Materials Science (KIMS), Korea

Development of microfiltration membranes of biodegradable biomass plastics with the aid of surfactants and their application to depth filtration, T. Tanaka*, H. Minbu, A. Ochiai, M. Taniguchi, Niigata University, Japan

G10

Filter Test Systems II

Session Chair: Achim Dittler

16:45 room
18:00 4A

Investigation of regeneration stability of pulse-jet regenerated filter media under laboratory test conditions, P. Spanring, N.A. Nowak, T. Laminger*, G. Mauschitz, Vienna University of Technology, Austria

HEPA/ULPA filter leak testing for production control using solid PSL (Polystyrene-Latex) aerosol, M. Gahlert*, A. Rudolph, C. Peters, S. Große, Topas GmbH, Germany

Filter testing regarding separation efficiency in terms of airborne fungal spores, B. Führer*, C. Hartl, P. Lukas., G. Ettenberger, OFI Technology & Innovation Ltd.; M. Nachtnebel, J. Rattenberger, ZFE Graz Centre for Electron Microscopy, Austria

G11

Modelling and Simulation

Session Chair: Paolo Tronville

16:45 room
18:00 4B

Flow through randomly-oriented fibrous filters, J. Chaudhuri*, K. Boettcher, P. Ehrhard, Technical University Dortmund, Germany

The influence of slip flow on Filtration simulations on the nano scale, L. Cheng*, S. Linden, A. Wiegmann, Math2Market GmbH, Germany

Numerical and experimental investigations on loading-dependent particle deposition in electret filter media, M. Kerner*, S. Antonyuk, Technische Universität Kaiserslautern; K. Schmidt, IT for Engineering (it4e) GmbH; S. Schumacher, C. Asbach, Institute of Energy and Environmental Technology e.V. (IUTA), Germany

Thursday, October 24, 2019

L12

Cake Filtration - Enhancement of Continuous Vacuum Filters

Chair: Gernot Kramer

09:00 room
10:15 1A

CORES - Vacuum drum filter for highly corrosive media, W. Knobloch*, ANDRITZ KMPT GmbH, Germany

Proof-of-concept of a newly developed device for the coupled generation and separation of crystalline particles, L. Löbnitz, T. Dobler*, H. Nirschl, Karlsruhe Institute of Technology (KIT), Germany

Prediction of cake solids content in vacuum belt filters from temperature data, T. Kinnarinen*, H. Montonen., M. Huttunen., J. Ahola, T. Lindh., V. Karvonen, A. Häkkinen, Lappeenranta University of Technology (LUT), Finland

L13

Depth Filtration and Adsorption - Granular Beds

Session Chair: Kyung-Ju Choi

09:00 room
10:15 1B

Feedbacks on performance tests with Filtralite® media compared to conventional media filters at pilot scale, C. Helmer*, O. Danel, J.-F. Robin, A. Brehant, SUEZ Environment CIRSEE, France

New approaches for phosphate recovery applying iron hydroxide containing material in adapted sorption processes, A. Gerbeth*, B. Gemende, T. Riedel, F. Hascher, N. Pausch, University of Applied Sciences Zwickau; M. Leiker, R. Heiduschke, E. Schimann, P.U.S. Produktions- und Umweltservice GmbH, Germany

Performance of adsorption system for water desalination using metal organic framework, N. Genidi*, A.S. Hassan, Hamad Bin Khalifa University, Qatar

F9

Filter Media - Modelling, Artificial Intelligence, Machine Learning

Chair: Ralf Kirsch

09:00 room
10:15 2

Filtration modeling and simulation with GeoDict, from filter media to filter element, M. Azimian*, S. Linden, L. Cheng, A. Wiegmann, Math2Market GmbH, Germany

Identification of fiber characteristics of a filter media based on artificial intelligence (AI) with GeoDict, A. Griebner, R. Westerteiger, A. Wiegmann*, M. Azimian, Math2Market GmbH, Germany

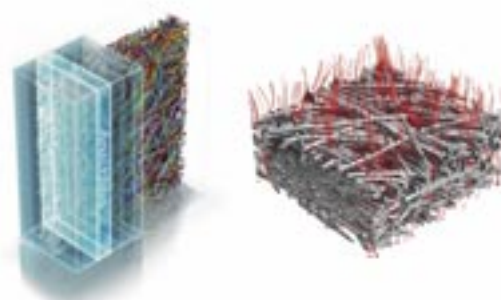


Fig. 1: left: artificial intelligence (AI)-based identification of fiber characteristics; right: particulate flow simulation through the media

Optimizing spunbond nonwovens for filter media production using a novel approach of machine learning and fiber/fluid simulations, S. Gramsch*, A. Sarishvili, A. Schmeißer, Fraunhofer Institute for Industrial Mathematics ITWM, Germany

Discover the Future of Filtration & Separation

G12 Measurement Techniques I

Session Chair: Achim Dittler

09:00 room
10:15 4A

Investigation of low-cost PM-sensors regarding the suitability for emission measurement for pulse-jet cleaned filters, P. Bächler*, J. Meyer, A. Dittler, Karlsruhe Institute of Technology (KIT), Germany

Measuring PM_{2.5} for cleanable filter media in ISO 11057 or ASTM D6830 tests using an optical aerosol spectrometer Promo® LED, P. Gäng*, FilTEq-Filtration Testing Equipment and Services GmbH, Germany

A setup for measuring passenger car brake dust particles emissions, M.J. Lehmann*, S.E. Pfannkuch, E. Thébault, A. Beck, MANN+HUMMEL GmbH, Germany

G13 Filter Element Design

Session Chair: Matthias Waldenmaier

09:00 room
10:15 4B

Associating filters by series for optimizing the retention capacity of nanoparticles, A. Charvet*, S. Pacault, D. Thomas, Lorraine University, France

A sustainable, modular and lean solution for pocket filter assembly, J. Kowalczyk*, D. Ciocco, A. Schwartz, B. Laurent, et al., Bollhoff Attexor SA, Switzerland

Pre-filter design of high efficient multilayer filter media for pulse cleanable filter cartridges for challenging atmospheric conditions, F. Heuzeroth*, Hengst SE, Germany

L14 Cake Filtration - Enhancement of Filter Presses

Session Chair: Pascal Ginisty

10:45 room
12:00 1A

Benefits of filter presses with artificial intelligence (AI) support in the chemical and mining industries, A. Decker*, ANDRITZ Separation GmbH, Germany

In-situ cleaning process of chamber filter presses with sensor-controlled and demand-oriented automation, P. Morsch*, H. Anlauf, H. Nirschl, Karlsruhe Institute of Technology (KIT); R. Werner, D.U. Geier, T. Becker, Technical University of Munich, School of Life Sciences Weihenstephan, Germany

New pilot for sludge electrofiltration and electrodewatering, J. Desabres*, B. Demasures, CHOQUENET SAS; E. Vorobiev, Technical University of Compiègne, France

L15 Depth Filtration and Adsorption - Modelling and Simulation

Chair: Lars Spelter

10:45 room
12:00 1B

Modeling the dynamics of filtration processes under variable flow conditions, R. Kirsch, S. Osterroth*, Fraunhofer Institute for Industrial Mathematics (ITWM), Germany

A flexible approach for meso-scale filtration modelling based on open-source CFD, U. Heck*, M. Becker, DHCAE Tools GmbH, Germany

Predicting collision efficiencies of colloidal nanoparticles in single spherical and fibrous collectors: A numerical study, D. Segets*, University Duisburg-Essen (UDE), Germany; H. Lee, D. Pui, University of Minnesota (UMN); S.-C. Chen, Virginia Commonwealth University (VCU), USA

F10 Numerical Analysis of Filter Media Pore Size and Structure

Chair: Ralf Kirsch

10:45 room
12:00 2

Simulation-enhanced bubble-point testing capabilities on wire meshes, D. Herper*, GKD - Gebr. Kufferath AG, Germany

Influence of fiber size distribution on the permeability of fibrous filters, N. Bardin-Monnier*, A. Charvet, D. Thomas, Lorraine University, France

A multi-scale study of the permeability of compressed nonwoven filter media, M. Kabel, R. Kirsch, S. Rief*, S. Staub, Fraunhofer Institute for Industrial Mathematics ITWM, Germany

G14 Measurement Techniques II

Session Chair: Gerd Mauschwitz

10:45 room
12:00 4A

Measurement of the PM_{2.5} oil concentration in water-oil miscible metal working fluid droplet emissions and a new aerosol generator for high oil-water-droplet concentrations, T. Laminger*, W. Höflinger, Vienna University of Technology, Austria; J. Weber, M. Schmidt, L. Moelter, Palas GmbH, Germany; R. Piringner, AUVA, Austria

Benefits of single photometer technology in an automated filter tester, G. Patel*, ATI - Air Techniques International, USA

Performance of two online particulate matter measurement principles in a fertilizer industrial prilling tower, E. Krauss*, M.L. Aguiar, Federal University of Sao Carlos, Brazil

G15 Filter Medium Design

Session Chair: Matthias Waldenmaier

10:45 room
12:00 4B

Innovative design, analysis and optimization of woven filter media through experimental and computational methods, M. Azimian*, J. Becker, A. Wiegmann, Math2Market GmbH; A. Mantler, F. Meyer, F. Edelmeier, HAVER & BOECKER OHG, Germany

Novel sintered metal filter elements: Performance evaluation in biomass gasification conditions, S. Tuomi*, E. Kurkela, M. Nieminen, M. Kurkela, I. Hiltunen, VTT Technical Research Centre of Finland Ltd, Finland; H. Balzer, A. Wierhake, GKN Sinter Metals Filters GmbH, Germany

Use of metallic filters to prevent the degradation of HEPA filters in case of vapour release, S. Bourrous*, M. Barrault, A. Brunisso, INRS Institut National de Recherche et de Sécurité, France

L16 Dewaterability of Sludges

Session Chair: Pascal Ginisty

13:00 room
14:15 1A

Sludge solids concentration: Which are the limits?, P. Ginisty*, IFTS - Institute of Filtration & Techniques of Separation, France; J.B. Kopp, Sewage Sludge Treatment Consulting KBKopp, Germany; A.K. Melsa, L. Spinosa, International Organization for Standardization - ISO TC275/WG6 Working Group



Figure 1: Micro structure of a filter medium (sintered metal)

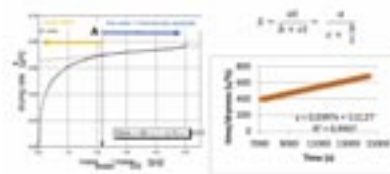


Figure 2: Correlation between sludge solids concentration and dewaterability

Why dewaterability of sewage sludge occurs upstream- a model to quantify the effects, J. B. Kopp*, Sewage Sludge Treatment Consulting KBKopp, Germany

Filtered dry stack tailings: The 'state of play' for high capacity tailings filter plants, R. Whittering*, Ausenco, UK; M. Pyle, G. Lane, Ausenco, Australia

L17

Backwashing Filtration

Session Chair: Gernot Krammer

13:00 room
14:15 1B

Cost and energy saving through automatic backwash filter in PE production, S. Schöpf, W. Watzinger*, Lenzing Technik GmbH, Germany

Influencing parameters to improve the regeneration efficiency of backwashing filters, P. Morsch*, H. Anlauf, H. Nirschl, Karlsruhe Institute of Technology (KIT), Germany

Assessment of filter media properties for automatic self-cleaning filters, T. Buchwald*, U. Peuker, Technical University Bergakademie Freiberg, Germany

L18

Froth Flotation and Liquid/Gas Separation

Session Chair: Ioannis Nicolaou

13:00 room
14:15 2

Optimization of gas input in aqueous two-phase flotation (ATPF) for enzyme purification, L. Jakob*, J. Singer, H. Nirschl, Karlsruhe Institute of Technology (KIT), Germany

Air separation from a hydraulic tank using special meshes, A. Zakaria, Abou Bekr Belkaid University, Algeria; J. Gorle*, Parker Hannifin, Finland

G16

Particles for Filter Testing

Session Chair: Thomas Laminger

13:00 room
14:15 4A

New synthetic nano-aerosol for accelerated realistic ageing of air filters, J. A. Marval Díaz, L. Medina, E. Norata, P. Tronville*, Politecnico di Torino, Italy

Comparison of different discharging methods and test aerosols for measuring the efficiency of electret filters, S. Schumacher*, R. Jasti, C. Asbach, Institute for Energy and Environmental Technology e.V. (IUTA); M. Kerner, S. Antonyuk, Technische Universität Kaiserslautern, Germany

Testing the efficiency of process filtration of viruses in gases with protein nanoparticle surrogates, M. Nazir*, Memsep Filtration Ltd., UK; R. Dalal, A. Kamble, S. Singh, A. Sharma, R. Dalal, FSP Technologies, India

F11

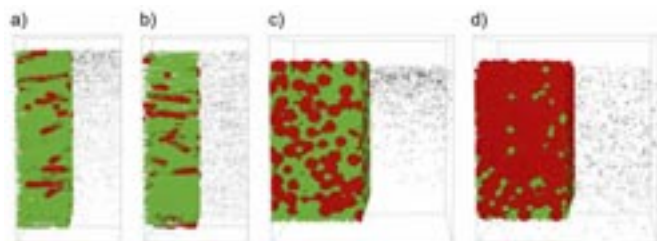
Numerical Methods for Filter Media Characterization and Improvement

Chair: Andreas Wiegmann

13:00 room
14:15 4B

Simulation of fine fiber generation in electrospinning and meltblown for filtration, D. Hietel*, W. Arne, R. Wegener, M. Wieland, Fraunhofer Institute for Industrial Mathematics (ITWM), Germany

Improving depth-filter media using a new multi-scale approach, M. Kuhn*, C. Geerling, H. Briesen, Technical University of Munich; M. Azimian, A. Wiegmann, Math2Market GmbH, Germany



Exemplary results for fibrous (a and b) as well as packed-bed depth-filter media (c and d). In all cases, the right half of the filter structure is hidden to show the internally deposited impurity particles which are displayed in black. Red and green are the two-sized constituents of the corresponding filter media; red is the larger fraction. (a) and (c) are base cases, (c) and (d) are optimized filter media showing a much more homogenous deposition along the filter depth compared to the base cases.

Computer-aided study of the diesel-water separation efficiency of screen meshes, O. Elsayed*, R. Kirsch, S. Osterroth, Fraunhofer Institute for Industrial Mathematics (ITWM); S. Antonyuk, Technische Universität Kaiserslautern, Germany

L19

Liquid/Liquid Separation

Session Chair: Harald Banzhaf

14:45 room
16:00 1A

Automatic water disposal for heavy duty and industrial applications – Removal of hydrocarbons to ensure environmental protection, L. Spelter*, J. Neumann, MANN+HUMMEL GmbH, Germany

A methodology for estimating water droplet sizes and predicting filter performance in diesel fuel and lube oil applications, M.F. Alzoubi*, John Crane Inc., USA; E. Barega, T. van der Linde, INDUFIL BV part of John Crane Inc., The Netherlands

Best practice for liquid-liquid separation with cartridge coalescers, C. Rodewald*, D. Steinberger, PALL GmbH, Germany

L20

Enhancement of Backwashing and Cake Filtration Performance

Chair: Harald Anlauf

14:45 room
16:00 1B

Investigation about cohesion and adhesion in backwashing filtration based on penetrometry and tension tests, Y. Feith*, P. Morsch, H. Anlauf, H. Nirschl, Karlsruhe Institute of Technology (KIT), Germany; P. Ginisty, Institut de la Filtration et des Techniques Séparatives (IFTS), France

Separation and dewatering of biological microparticles from low concentrated suspensions by using the energy efficient thin film filtration, Z. Lam*, H. Anlauf, H. Nirschl, Karlsruhe Institute of Technology (KIT), Germany

Amelioration of phosphoric acid separation from phosphogypsum crystals using physical and chemical techniques, E.A. Abdel-Aal*, Central Metallurgical Research and Development Institute (CMRDI), Egypt

G17

Monitoring and Control

Session Chair: Markus Lehner

14:45 room
16:00 4A

A new methodology for continuous scanning of particle aerodynamic diameter and application to filtration performance assessment of a room air purifier, S. Payne*, J. Symonds, Cambustion Ltd; T. Johnson, Cambridge University, UK

VisionAir Clean for clean room air change rate optimization, J.W. Rajala*, S. O'Reilly, AAF Flanders, USA

Smart air filtration, air filters go digital - Chances and risks of new roads to market, T. Stoffel*, DELBAG GmbH, Germany

F12

Advanced Filter Media for Gas Filtration

Session Chair: A. Mukhopadhyay

14:45 room
16:00 4B

Pore size of the spunlaced nonwovens and Optimization of the parameters for air filtration application, A. Patnaik*, L. Maduna, Cape Peninsula University of Technology, South Africa

smartMELAMINE® - The first melamine meltblown nonwoven, C. Löning*, smartMELAMINE d.o.o., Slovenia

Welstrat: An innovative filter media for hot gas filtration application, L. Joshi*, N. Shukla*, Welspun India Ltd., India

Conference Prices	Early Bird until 31.07.2019	Normal Price from 01.08.2019
3-Day-Congress Ticket	€ 630,-	€ 810,-
1-Day-Congress Ticket	€ 300,-	€ 395,-

Short Course Prices	Early Bird until 31.07.2019	Normal Price from 01.08.2019
Short Course I		
Solid/Liquid Separation	€ 480,-	€ 580,-
Short Course II		
Fine Dust Separation	€ 480,-	€ 580,-