

4th International Seminar on Aerogels

(24th – 26th September 2018)

Hamburg University of Technology

(Hamburg, Germany)

Oral presentations: Audimax II

DAY 1				Monday , 24 th September 2018		
07:30		Registration				
08:30		Opening (I.Smironova)				
08:45 - 09:15		1 - 1		Improvement of structural/mechanical properties of low density hybrid gels based on siloxane and hydrocarbon crosslinks <i>Kazuki Nakanishi, Kazuyoshi Kanamori, Guoqing Zu, Taiyo Shimizu, Masayuki Kurita</i>		Keynote 1
09:15 - 09:35		1 - 2		Multifunctional green silica/ silsesquioxane – silk fibroin aerogel hybrids: from environmental sustainability and thermal insulation to dual-porous scaffolds for bone tissue engineering applications <i>Hajar Maleki, Susan Montes, Nicola Hüsing</i>		Functional aerogels (I.Smironova)
09:35 - 09:55		1 - 3		Flexible and stimuli responsive porous polysilsesquioxanes <i>D. Euchler, R. Ehgartner, N. Hüsing, A. Feinle</i>		
09:55 - 10:15		1 - 4		Bioinspired Synthesis of Aerogels <i>Xiao Han, Khalil T. Hassan, Alan Harvey, Dejan Kulijer, Adrian Oila, Michael R.C. Hunt and Lidija Šiller</i>		
10:15 - 10:35		1 - 5		Superinsulating, machinable, biopolymer-silica hybrid aerogels: Impregnating freeze-dried, nanofibrous pullulan sponges with silica aerogel <i>Shanyu Zhao, Olivier Emery, Anja Wohlhauser, Matthias M. Koebel, Christian Adlhart, Wim J. Malfait</i>		
Coffee Break 10:35 - 11:10						
11:10 - 11:30		2 - 1		Determining mechanical properties on different length scales from adsorption analysis combined with in-situ dilatometry <i>C. Balzer, S. Zhao, G. Reichenauer</i>		Aerogels characterization (F.Liebner)
11:30 - 11:50		2 - 2		High-Pressure Torsional Braid Analysis (HP-TBA) A new technique for assessment of thermal transitions and changes in moduli of polymers exposed to supercritical or compressed fluids <i>Erdogan Kiran and John C. Hassler</i>		
11:50 - 12:50		Poster Speed Presentations (ODD Poster numbers 1 Slide, 90 Sec)				
LUNCH AND POSTER SESSION (ODD Poster numbers) 12:50 - 14:30						

14:30 - 14:50	3 - 1	Synthesis and Characterization of High-Strength, High-Temperature, Flexible, Water-Resistant Polyamide Aerogels <i>Justin S. Griffin, Ryan T. Nelson, and Stephen A. Steiner III</i>	Functional aerogels (B.Milow)
14:50 - 15:10	3 - 2	Poly(urethane-acrylate) Aerogels via Radical Polymerization of Dendritic Urethane-Acrylate Monomers with Rigid versus Flexible Cores <i>Patrino Paraskevopoulou, Maria Papastergiou, Despoina Chriti, Grigorios Raptopoulos</i>	
15:10 - 15:30	3 - 3	Environment-friendly phenol mineralization with Cu- and Fe-5,10,15,20-tetrakis(4-aminophenyl)porphyrin complexes immobilized in a silica aerogel matrix <i>Enikő Győri, István Fábián, István Lázár</i>	
15:30 - 15:50	3 - 4	Silica-based composite materials reinforced with natural fibers <i>Andreia Romeiro, Luísa Durães, António Portugal</i>	
15:50 - 16:10	3 - 5	Strategy for coating of organic aerogels using spouted bed technology <i>Monika Goslinska, Imke Preibisch, Irina Smirnova, Stefan Heinrich</i>	
16:10 - 16:30	3 - 6	Synthesis of low density and low thermal conductive MTMS based flexible aerogels by refluxing method <i>A. Venkateswara Rao, Abhijit Arvind Pisal and G.M.Pajonk</i>	
Coffee Break 16:30 - 17:00			
17:00 - 17:15	4 - 1	A Market Outlook for the Aerogel Industry <i>Richard Collins</i>	Industrial applications of aerogels (L.Ratke)
17:15 - 17:30	4 - 2	Aerogels as High-Performance Insulation Materials by BASF <i>S.Movahhed, D. Weinrich, V. Vogelsang, W. Lölsberg, M. Fricke</i>	
17:30 - 17:45	4 - 3	Effective Dispersions of Silica Aerogels in Plaster for Manufacturing Cost Competitive Thermal Insulating Building Materials <i>Steve De Pooter, Steven Latré, Frederik Desplentere, David Seveno</i>	
17:45 - 18:00	4 - 4	Three routes for superinsulating, silica aerogel powder production: material quality and economic considerations <i>Ana Stojanovic, Shanyu Zhao, Emanuele Angelica, Wim J. Malfait, Matthias M. Koebel</i>	
18:00 - 18:15	4 - 5	Novel circular economy business model of high-added value products for energy efficiency: from C&DW to aerogels <i>F. Ruiz-González, K. Philippe, E. Goiti, M. Ocejo and I. Vegas</i>	
18:15 - 18:30	4 - 6	Oil mist filtration on fibrous filters modified with MTMS-based aerogel – aerogel sorption capacity and filter efficiency <i>Bartosz Nowak, Marta Bojarska, Jakub Gac</i>	
18:30 - 18:45	4 - 7	Preparation of 3-D Polymer Aerogel Fiber Textiles <i>Yosry Attia</i>	
18:45 - 19:00	4 - 8	Scaling Airloy: Design, Construction, and Cost Modelling of a Pilot Plant for Mechanically Strong Polymer Aerogel Monoliths <i>Stephen A. Steiner III, Justin S. Griffin, Ryan T. Nelson, John N. Schneider, and Mark F. Schneider</i>	
Dinner 19:30 - ca. 23:00			

DAY 2		Tuesday, 25 th September 2018	
08:30 - 09:00	5 - 1	Optimizing Nanomaterials-Based Electrodes for Electrochemical Energy Storage and Conversion <i>Victor A. Beck, Todd Weisgraber, Anna N. Ivanovskaya, Swetha Chandrasekaran, Bryan D. Moran, Seth E. Watts, Dan A. Tortorelli, Juergen Biener, Marcus A. Worsley</i>	Keynote 2
09:00 - 09:20	5 - 2	Direct Ink Writing of Carbon and Graphene Aerogels <i>Swetha Chandrasekaran, Bin Yao, Tianyu Liu, Wang Xiao, Yu Song, Fang Qian, Cheng Zhu, Eric B. Duoss, Christopher M. Spadaccini, Yat Li, Theodore F. Baumann, Marcus A. Worsley</i>	
09:20 - 09:40	5 - 3	Electrocatalysis on nanoparticle derived aerogels <i>A. Eychmüller</i>	Aerogels for electrochemistry and catalysis (I.Smirnova)
09:40 - 10:00	5 - 4	Multicomponent Gel Networks of Nanoparticles for Photoelectrochemical Applications <i>Marina Rosebrock, Jan Miethe, Pascal Rusch, Anja Schlosser and Nadja-C. Bigall</i>	
10:00 - 10:20	5 - 5	Ultra-Low-Density Metal Nanowire Aerogels <i>Tyler M. Fears, Fang Qian, Tom Braun, Alyssa L. Troksa, Joshua A. Hammons, Michael H. Nielsen, Jean-Baptiste Forien, Theodore F. Baumann, T. Yong-Jin Han, Sergei O. Kucheyev, and Michael Bagge-Hansen</i>	
Coffee Break 10:20 - 10:50			
10:50 - 11:10	6 - 1	Mapping Catalytic Performance of Nickel Nanowires Immobilised in Silica Aerogels for CO ₂ Hydration Reaction <i>Khalil T. Hassan, Jiabin Wang, Xiao Han, Jon J Sharp, Gaurav A. Bhaduri, Vladimir Martis and Lidija Šiller</i>	Aerogels for electrochemistry and catalysis (A.Eychmüller)
11:10 - 11:30	6 - 2	Aerogel-like composite catalysts synthesized via advanced approaches combining sol-gel and SCF methods <i>N.S. Nesterov, A.S. Shalygin, O.N. Martyanov</i>	
11:30 - 11:50	6 - 3	Carbon aerogels as cathode matrix for lithium-sulfur batteries <i>Marina Schwan, Barbara Milow, Frieder Warth, and Norbert Wagner</i>	
11:50 - 12:10	6 - 4	Manganese oxides aerogels and nanoparticles obtained in a one-pot one-step process directly in supercritical CO ₂ <i>I.V. Elmanovich, V.V. Zefirov, M.O. Gallyamov</i>	
12:10 - 13:10	Poster Speed Presentations (EVEN Poster numbers, 1 slide, 90 sec)		
LUNCH AND POSTER SESSION (EVEN Poster numbers) 13:10 - 14:50			

14:50 - 15:10	7 - 1	Automotive Engine Covers Made from Mechanically Strong Monolithic Polymer Aerogels <i>Ryan T. Nelson, Justin S. Griffin, Alper Kiziltas, Deborah Mielewski, and Stephen A. Steiner III</i>	Aerogel applications (G.Reichenauer)
15:10 - 15:30	7 - 2	Ceria-containing Catalytic Aerogels for Applications in Automotive Pollution Mitigation <i>Mary K. Carroll, Ann M. Anderson, Luisa F. Posada, Xiao Peng Li, Thomas F. Andre, Bradford A. Bruno</i>	
15:30 - 15:50	7 - 3	Extending applicability of colloidal nanoparticle-based aerogels: mixed and hybrid structures as well as processable inks <i>N.Gaponik</i>	
15:50 - 16:10	7 - 4	Aerogel-based, light-driven gas pump and VOC removal <i>Shanyu Zhao, Sarka Drdova, Olivier Emery, Matthias M. Koebel, Jing Wang, Wim J. Malfait</i>	
16:10 - 16:30	7 - 5	Applications of Aerogel Technology to Current Biomedical Demands <i>Carlos A. García-González, Angel Concheiro, Jose L. Gómez-Amoza, Carmen Alvarez-Lorenzo</i>	
16:30 - 16:50	7 - 6	Pectin-xanthan aerogel coatings on medical grade stainless steel for hip implants <i>Zoran Novak, Gabrijela Horvat, Željko Knez, Lidija Gradišnik, Uroš Maver, Klodian Khanari, Majaž Finšgar</i>	
Coffee Break 16:50 - 17:10			
17:10 - 17:30	8 - 1	Polymerization induced phase separation – a mechanism for structure formation in aerogels? <i>Lorenz Ratke, Fei Wang and Britta Nestler</i>	Modelling of aerogel formation and processing (P.Gurikov)
17:30 - 17:50	8 - 2	Insights into molecular mechanics of nanostructured porous silica aerogel <i>Sandeep P. Patil, Ameya Rege, Mikhail Itskov, and Bernd Markert</i>	
17:50 - 18:10	8 - 3	Molecular modelling study of organically-modified silica aerogels <i>Pedro Maximiano, Luísa Durães, Pedro N. Simões</i>	
18:10 - 18:30	8 - 4	Modelling the mechanical behaviour of dry and wet polysaccharide based aerogels <i>Ameya Rege and Mikhail Itskov</i>	
18:30 - 18:50	8 - 5	Thermal conductivity of bio-aerogels <i>Sophie Groult, Lucile Druel, Cyriel Rudaz, Tatiana Budtova</i>	

DAY 3		Wednesday, 26 th September 2018	
08:30 - 08:50	9 - 1	Supercritical drying of aerogels – Thermodynamic considerations for critical process steps <i>André Mohs, Volkmar Steinhagen</i>	Supercritical drying (Z.Novak)
08:50 - 09:10	9 - 2	Reduction of compression requirements during aerogel production <i>Alberto Bueno, Ilka Selmer, Raman S.P., Pavel Gurikov, Wibke Lölsberg, Dirk Weinrich, Marc Fricke, Irina Smirnova</i>	
09:10 - 09:30	9 - 3	Investigation of External Mass Transfer Effects in Supercritical Drying of Alcogel Particles <i>İbrahim Şahin, Erdal Uzunlar, Can Erkey</i>	
09:30 - 09:50	9 - 4	Modeling and scale up of supercritical drying process <i>Lebedev A.E., Khudeev I.I., Menshutina N.V.</i>	
09:50 - 10:10	10 - 1	Recent Developments of Transparent Chitosan Aerogel <i>Satoru Takeshita, Satoshi Yoda</i>	Biopolymer aerogels (C.Garcia)
10:10 - 10:30	10 - 2	Chitosan aerogels with skeletal molecular-level enhancement <i>Sizhao Zhang, Junzong Feng, Liangjun Li, Yonggang Jiang, Jian Feng</i>	
Coffee Break 10:30 - 11:00			
11:00 - 11:20	10 - 3	Evaluation of chitosan aerogel for application in aeronautics <i>Philipp Niemeyer, Timothy Goller, Lorenz Ratke, Barbara Milow</i>	
11:20 - 11:40	10 - 4	Self-assembly of cellulose in super-cooled ionic power-law fluids: A facile approach towards novel anisotropic cellulose II aerogels <i>Sven Plappert, Jean-Marie Nedelec, Harald Rennhofer, Helga Lichtenegger, Sigrid Bernstorff, Falk Liebner</i>	
11:40 - 12:00	10 - 5	Strain hardening and pore size harmonization by uniaxial densification: A facile approach towards superinsulating aerogels from nematic nanofibrillated 2,3-dicarboxyl cellulose <i>Sven Plappert, Jean-Marie Nedelec, Harald Rennhofer, Helga Lichtenegger, Julien Jaxel, Falk Liebner</i>	
12:00 - 12:20	10 - 6	Cellulose aero/xerogels for moisture sorption <i>Fernando Alvarado and Lennart Salmén</i>	
12:20 - 12:40	10 - 7	Cellulose aerogels shaping and properties for tailored applications <i>Lucile Druel, Amelie Kenkel, Philipp Niemeyer, Victor Baudron, Barbara Milow, Tatiana Budtova</i>	
12:40 - 13:00	10 - 8	Collagen based aerogels as promising biomaterials for bone tissue engineering <i>Lovskaya D.D., Menshutina N.V.</i>	
13:00 - 13:30	Poster Prize (Jury) - Advapore Prize (O'Connor) - Aerogel Community (S.Steiner) Concluding remarks (I.Smirnova)		