

14th Fall Rubber Colloquium (online)
November 8 - 10, 2022

14. Kautschuk-Herbst-Kolloquium (online)
8. - 10. November 2022

Deutsches Institut für Kautschuktechnologie e. V.
Hannover, Germany



Preliminary Scientific Program

Time zone: CET

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Tuesday, November 8, 2022

Opening ceremony

9:00

U. Giese

Managing Director of DIK

9:10

U. Giese

Key Lecture: *Challenges and Future Strategies in Rubber Industry and Research*

	Session 1 Chemistry - Materials Chairperson: U. Giese	Session 2 Physics Friction/Traction Chairperson: A. Lang
9:30	S. Kawahara Nagaoka University of Technology <i>Preparation and Mechanical Properties of Vulcanized Natural Rubber with High Stereoregularity</i>	B. Yoon Sungkyunkwan University <i>Experimental Investigation on Friction Behaviors of Rice Husk Silica-filled SBR Compounds in contact with rough granite</i>
10:00	D. Arti National Research and Innovation Agency (BRIN) <i>Dynamic Mechanical Analysis of Standard Indonesian Rubber/ Chloroprene Rubber for Seismic Base Isolator Application</i>	C. Karl SINTEF AS <i>Surface modified elastomers for low-friction applications</i>
10:30	D. Pluquin SI Group <i>Next-generation sustainable & bio-sourced rubber-to-metal bonding solutions for tires and technical rubber goods</i>	J. Noordermeer Noordermeer Rubber Consultancy <i>Measuring rubber tribological properties using a Laboratory Abrasion Tester (LAT100) to predict car tire performance</i>
11:00	BREAK 15 min.	



Tuesday, November 8, 2022

	Session 1 Chemistry - Reinforcement Chairperson: U. Giese	Session 2 Physics Rheology/Lifetime Chairperson: J. Meier
11:15	M. Galimberti Politecnico di Milano <i>A biosourced Janus molecule as universal coupling agent in rubber compounds</i>	I. Chodak Polymer Institute of Slovak Academy of Sciences <i>Structure of reinforcing carbon blacks network during cyclic uniaxial deformation, determined for SBR and EPDM vulcanizates</i>
11:45	V. Barbera Politecnico di Milano <i>The importance of being a Janus molecule: Performances and control of chemistry.</i>	C. Egelkamp Deutsches Institut für Kautschuktechnologie e. V. <i>Influence of the bonding mechanism of demonstrator fillers on the lifetime of elastomer compounds</i>
12:15	P. Bernal University of Twente <i>Comparison between SBR compounds filled with in-situ and ex-situ silanized silica</i>	T. Sawada OILES Corporation <i>Dynamic Behavior of Actual Size Elastomeric Sliding Bearings for Seismic Isolation Buildings</i>
12:45	BREAK 30 min.	



Tuesday, November 8, 2022

	Session 1 Chemistry - Reinforcement Chairperson: T. Krups	Session 2 Physics - Rheology Chairperson: J. Meier
13:15	P. Posadas Institute of Polymer Science and Technology, Spanish National Research Council ICTP (CSIC) <i>Effect of Carboxylated Styrene Butadiene rubber in Silica-reinforced tire tread compound</i>	J. Kroll Evonik Operations GmbH <i>LAOS and the geometry of Lissajous figures</i>
13:45	A. Aggarwal Department of Elastomer Technology and Engineering, University of Twente <i>Development of a new method for Payne effect measurement of silica filled compounds to overcome filler flocculation</i>	L. Schasse Deutsches Institut für Kautschuktechnologie e. V. <i>Time-temperature superposition of acoustic properties of elastomers acquired by ultrasonic transmission</i>
14:15	C. Robertson Polymer Technology Services LLC <i>Failure Statistics and Multi-Zone Fracture Surfaces for Tensile Testing of Rubber</i>	D. Simic Deutsches Institut für Kautschuktechnologie e. V. <i>Magnetorheological elastomers with energy harvesting applications</i>
14:45	BREAK 15 min.	



Tuesday, November 8, 2022

	Session 1 Processing - Mixing Chairperson: H. Geisler	Session 2 Physics - Rheology Chairperson: J. Meier
15:00	J. Dick Alpha Technologies <i>Comparative Advantages of Different RPA ASTM Methods for Detecting Rubber Compound Quality Differences</i>	R. Hjelm New Mexico Consortium and National Security Education Center, Los Alamos National Laboratory <i>Molecular-scale polymer melts in shear in the non-linear rheological domain: molecular weight and complex architecture</i>
15:30	R. Das Luxembourg Institute of Science and Technology <i>Effect of processing parameters on the morphology of resin-filled-rubber compounds: A study using Design of Experiments</i>	D. Kleinschmidt Kunststofftechnik Paderborn, Universität Paderborn <i>Estimation and correction of non-isothermal effects of carbon black-filled rubber compounds in viscosity measurements</i>
16:00	END of 1st day	



Wednesday, November 9, 2022

	Session 1 Chemistry - Vulcanization Chairperson: U. Giese	Session 2 Processing - Extrusion Chairperson: B. Klie	Session 3 Simulation Chairperson: P. Schneider
09:00	Y. Ikeda Kyoto Institute of Technology <i>Sophisticated vulcanization of rubber</i>	G. Nijman KraussMaffei Extrusion GmbH <i>Vapor phase vulcanization: a new technology for profile extrusion lines</i>	R. Landgraf Chemnitz University of Technology <i>Experiments, constitutive modeling and finite-element-analyses of additively manufactured thermo-plastic polyurethane</i>
09:30	C. Nakason Prince of Songkla University, THAILAND <i>Metal ions Cross-links of Epoxidized Natural Rubber</i>	U. Nillius Institut für Kunststoffverarbeitung an der RWTH Aachen <i>Optimisation of pressure and throughput fluctuations of a cold-fed rubber extruder with a separately driven feed roller</i>	R. Hentschke Bergische Universität Wuppertal <i>A Coarse-Grained Model for the Simulation of Dynamic Properties of Filled Elastomers</i>
10:00	R. Bosch Rubber Nano Products (Pty) Ltd <i>The activation of sulfur vulcanization without zinc</i>	A. Aschemann Deutsches Institut für Kautschuktechnologie e. V. <i>Digital Rubber Processing – Extrusion and digital twin of the extrudate</i>	S. Haupt TU Bergakademie Freiberg <i>Experimental and simulative investigations on the demolding behavior</i>
10:30	BREAK 15 min.		



Wednesday, November 9, 2022

	Session 1 Chemistry - Vulcanization Chairperson: H. Geisler	Session 2 3D-Printing - Reinforcement Chairperson: B. Klie	Session 3 Sustainability Chairperson: T. Krups
10:45	A. Blume University of Twente <i>Elucidation of the role of ZnO in sulfur cure in novel EPDM-CTS blends</i>	L. Sundermann Deutsches Institut für Kautschuktechnologie e. V. <i>Additive Manufacturing of 2-Component Rod Seals Based on NBR and TPU</i>	H. Dikland ARLANXEO Netherlands BV <i>Elastomers Solutions for Sustainable Mobility</i>
11:15	M. van Duin ARLANXEO Performance Elastomers <i>Structure-properties relationships of sulfur-vulcanized, polar rubbers vs. non-polar rubbers</i>	R. Thiel Deutsches Institut für Kautschuktechnologie e. V. <i>Additive manufacturing (AM) of rubber parts based on liquid rubber polymers</i>	W. Dierkes University of Twente <i>The contradiction of high polymer-filler interactions and low mechanical properties of pyrolytic CB filled compounds</i>
11:45	S. Coppola Versalis SpA (Eni) <i>From molecular structure to extensional rheology of long chain branched, high cis BR</i>	R.H. Schuster <i>Importance of Carbon Nanotubes in Rubber Compounding</i>	D. Katrakova-Krüger TH Köln <i>Tire Wear Particles – A Vision for a Cleaner Future“ für Conference Topic Sustainability – Emissions</i>
12:15	BREAK 60 min.		



Wednesday, November 9, 2022

	Session 1 Chemistry - Vulcanization Chairperson: U. Giese	Session 2 Extrusion - Mixing Chairperson: H. Geisler	Session 3 Physics - Reinforcement Chairperson: A. Lang
13:15	D.-M. Bielinski Politechnika Lodzka <i>A new approach to low-temperature sulfur vulcanization using an old trick</i>	F. Fey Institut für Kunststoffverarbeitung (IKV) an der RWTH Aachen <i>Single-stage profile coextrusion of rubber and thermoplastics into recyclable sealing profiles</i>	N. Vennemann Hochschule Osnabrück <i>Influence of unipolar electric fields on the behavior of DEA based on plasticized NBR</i>
13:45	M. Wilhelm Karlsruhe Institute of Technology, KIT, Karlsruhe <i>Rubber Crosslinking on a Unique Rheo-NMR Combination</i>	J. Uth UTH GmbH <i>About the influence of fine mesh straining upon rheological and physical properties of rubber compounds</i>	F. Grunert University of Twente <i>Investigation of the post-hardening effect of silica filled NR compounds</i>
14:15	J. Ludwig Ludwig Nano Präzision GmbH <i>Anisotherme Spannungsanalyse zur Charakterisierung lokaler Materialinhomogenitäten in Polymerblends</i>	M. De Greiff De Greiff Consulting <i>Method for the production of particulates Natural Rubber premixes using Liquid-Phase mixing</i>	M. Sek Elastomer Technology and Engineering (ETE), University of Twente <i>Use of statistical design of experiments to study reactions of functionalized rubber and silica in solution</i>
14:45	BREAK 15 min.		



Wednesday, November 9, 2022

	Session 1 Chemistry - Aging Chairperson: T. Krups	Session 2 Processing Injection Moulding Chairperson: H. Geisler	Session 3 Chemistry - Materials Chairperson: U. Giese
15:00	L. Jarsen Gottfried Wilhelm Leibniz University Hannover <i>Acid-catalyzed hydrolytic degradation of thermoplastic polymers in automotive cooling system</i>	E. Liarte ITAINNOVA <i>Evaluating the demoulding process of microtextured polymers</i>	G. Lottmann Proyectos Elásticos S.A. <i>Advances in the Responsible Supply Chain for Certified Sustainable Natural Rubber and Latex</i>
15:30	R. Pazur National Defense of Canada <i>Shelf life Determination of Aviation Tires: Method Development, Testing Results and Verification</i>	C. Wiesel Institut für Kunststoffverarbeitung <i>Production of media lines using Projectile Injection Technology</i>	H.X. Tung Leibniz-Institut für Polymerforschung Dresden e.V. <i>New test strategy to determine the effect of epoxy groups and non-rubber components on the phase-selective wetting of carbon black in natural rubber compounds</i>
16:00	END of 2nd day		



Thursday, November 10, 2022

	Session 1 Chemistry - Aging Chairperson: U. Giese	Session 2 Sustainability Chairperson: H. Geisler
09:00	Y. Aoyagi <i>Aging mechanism of sealing materials</i>	F. Bacchelli Versalis <i>Sustainable SBR/BR compounding through eco-design and recycling</i>
09:30	B. Karaagac Kocaeli University <i>An alternative antioxidant for NR: Henna – Structural study</i>	Z. Zepeda Rodriguez Instituto de ciencia y tecnología de polímeros (ICTP-CSIC) <i>Novel experimental approach to evaluate the structure of thermo-mechanical devulcanized rubber from end-of-life tires</i>
10:00	A. Kraibut University of Twente <i>Degradation behavior during mixing of silica-reinforced Natural Rubber: Changes of the dynamic responses</i>	R. Ghosh University of Twente <i>New routes of tire devulcanization with silane coupling agents</i>
10:30	BREAK 15 min.	



Thursday, November 10, 2022

	Session 1 Simulation Chairperson: A. Lang	Session 2 Sustainability CO₂-Footprint Chairperson: U. Giese
10:45	R. Stoczek PRL Polymer Research Lab <i>Heat build-up in rubber characterized under realistic load, experiments and modeling</i>	I. Hudec Slovak University of Technology, Bratislava <i>Calcium lignosulfonate filled rubber compounds based on NBR with enhanced physical-mechanical characteristics</i>
11:15	L. Tarrach Bergische Universität Wuppertal <i>Modelling Study of Reinforcement and Crack Formation in Strain-Crystallizing Elastomer Networks</i>	F. Diehl UPM Biochemicals GmbH <i>UPM BioMotion Renewable Functional Fillers (RFF) for a Lighter and more Sustainable Future</i>
11:45	F. Martin-Salamanca Spanish National Research Council (ICTP-CSIC) <i>A unified physical framework to characterize rubber compounds based on a combination of experimental approaches</i>	K. Narynbek Ulu Decathlon <i>Opportunities for use of novel sustainable raw materials in rubber formulations in micromobility applications</i>
12:15	BREAK 60 min.	



Thursday, November 10, 2022

	Session 1 Simulation Chairperson: P. Schneider	Session 2 Sustainability - Circular Economy Chairperson: H. Geisler
13:15	L. Guy Solvay <i>Silica / Silane reactivity - Computer modelling as an advanced tool to link with our experiments</i>	E. Hanggi LRCCP <i>Regeneration of EPDM rubber</i>
13:45	J. Itriago MINES Paris - PSL Research University, CEMEF <i>Cellularization modeling of a rubber compound in injection molding conditions</i>	L. Gschwind University of Applied Science Osnabrück <i>Recycling of EPDM rubber waste by continuous mechanochemical devulcanization</i>
14:15	M. Abdelmoniem Ostfalia university of applied sciences <i>Numerical Studies on the Dissipation behavior of Elastomers and it's Effect on the Applied Loading Conditions</i>	A. Isayev University of Akron <i>Ultrasound-aided extrusion technology for recycling of rubbers and crosslinked polyolefins</i>
14:45	BREAK 15 min.	



Thursday, November 10, 2022

	Session 1 Simulation Chairperson: A. Lang	Session 2 Sustainability Chairperson: U. Giese
15:00	P. Marter Otto von Guericke University <i>Improving the prediction quality of multibody simulations by using 3-D material models for filled elastomers</i>	J. Laages Deutsches Institut für Kautschuktechnologie e. V. <i>De-vulcanization efficiency for sulfur crosslinked natural rubber and styrene butadiene rubber</i>
15:30	Poster Award + Closing Remarks	



Deutsches Institut für Kautschuktechnologie e.V.

Eupener Straße 33

D-30519 Hannover

Phone: +49 511 84201-17

khk@dikautschuk.de

www.dikautschuk.de