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

Fall Rubber Colloquium Poster Award Sponsor

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Tuesday, November 8, 2022

Opening ceremony

9:00 **U. Giese**
Managing Director of DIK

9:10 **B. Althusmann**
Lower Saxony Minister of Economics, Labour, Transport and Digitalisation

	Session 1 Chemistry - Materials Chairperson: **U. Giese**	Session 2 Physics Friction/Traction Chairperson: **A. Lang**
9:30	**S. Kawahara** Nagaoka University of Technology *Preparation and Mechanical Properties of Vulcanized Natural Rubber with High Stereoregularity*	**B. Yoon** Sungkyunkwan University *Experimental Investigation on Friction Behaviors of Rice Husk Silica-filled SBR Compounds in contact with rough granite*
10:00	**D. Arti** National Research and Innovation Agency (BRIN) *Dynamic Mechanical Analysis of Standard Indonesian Rubber/ Chloroprene Rubber for Seismic Base Isolator Application*	**C. Karl** SINTEF AS *Surface modified elastomers for low-friction applications*
10:30	**D. Pluquin** SI Group *Next-generation sustainable & bio-sourced rubber-to-metal bonding solutions for tires and technical rubber goods*	**J. Noordermeer** Noordermeer Rubber Consultancy *Measuring rubber tribological properties using a Laboratory Abrasion Tester (LAT100) to predict car tire performance*
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 *A biosourced Janus molecule as universal coupling agent in rubber compounds*	**I. Chodak** Polymer Institute of Slovak Academy of Sciences *Structure of reinforcing carbon blacks network during cyclic uniaxial deformation, determined for SBR and EPDM vulcanizates*
11:45	**V. Barbera** Politecnico di Milano *The importance of being a Janus molecule: Performances and control of chemistry.*	**C. Egelkamp** Deutsches Institut für Kautschuktechnologie e. V. *Influence of the bonding mechanism of demonstrator fillers on the lifetime of elastomer compounds*
12:15	**P. Bernal** University of Twente *Comparison between SBR compounds filled with in-situ and ex-situ silanized silica*	**T. Sawada** OILES Corporation *Dynamic Behavior of Actual Size Elastomeric Sliding Bearings for Seismic Isolation Buildings*
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) *Effect of Carboxylated Styrene Butadiene rubber in Silica-reinforced tire tread compound*	**J. Kroll** Evonik Operations GmbH *LAOS and the geometry of Lissajous figures*
13:45	**A. Aggarwal** Department of Elastomer Technology and Engineering, University of Twente *Development of a new method for Payne effect measurement of silica filled compounds to overcome filler flocculation*	**L. Schasse** Deutsches Institut für Kautschuktechnologie e. V. *Time-temperature superposition of acoustic properties of elastomers acquired by ultrasonic transmission*
14:15	**C. Robertson** Polymer Technology Services LLC *Failure Statistics and Multi-Zone Fracture Surfaces for Tensile Testing of Rubber*	**D. Simic** Deutsches Institut für Kautschuktechnologie e. V. *Magnetorheological elastomers with energy harvesting applications*
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 *Comparative Advantages of Different RPA ASTM Methods for Detecting Rubber Compound Quality Differences*	**R. Hjelm** New Mexico Consortium and National Security Education Center, Los Alamos National Laboratory *Molecular-scale polymer melts in shear in the non-linear rheological domain: molecular weight and complex architecture*
15:30	**R. Das** Luxembourg Institute of Science and Technology *Effect of processing parameters on the morphology of resin-filled-rubber compounds: A study using Design of Experiments*	**D. Kleinschmidt** Kunststofftechnik Paderborn, Universität Paderborn *Estimation and correction of non-isothermal effects of carbon black-filled rubber compounds in viscosity measurements*
16:00	**END of 1st day**	

Wednesday, November 9, 2022

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

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Wednesday, November 9, 2022

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

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

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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 *Acid-catalyzed hydrolytic degradation of thermoplastic polymers in automotive cooling system*	**E. Liarte** ITAINNOVA *Evaluating the demoulding process of microtextured polymers*	**G. Lottmann** GF Trading *Advances in the Responsible Supply Chain for Certified Sustainable Natural Rubber and Latex*
15:30	**R. Pazur** National Defense of Canada *Shelf life Determination of Aviation Tires: Method Development, Testing Results and Verification*	**C. Wiesel** Institut für Kunststoffverarbeitung *Production of media lines using Projectile Injection Technology*	**H.X. Tung** Leibniz-Institut für Polymerforschung Dresden e.V. *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*
16:00	**END of 2nd day**		

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Thursday, November 10, 2022

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

Thursday, November 10, 2022

	Session 1 **Simulation** Chairperson: **A. Lang**	Session 2 **Sustainability** **CO_2-Footprint** Chairperson: **U. Giese**
10:45	**R. Stocek** PRL Polymer Research Lab *Heat build-up in rubber characterized under realistic load, experiments and modeling*	**I. Hudec** Slovak University of Technology, Bratislava *Calcium lignosulfonate filled rubber compounds based on NBR with enhanced physical-mechanical characteristics*
11:15	**L. Tarrach** Bergische Universität Wuppertal *Modelling Study of Reinforcement and Crack Formation in Strain-Crystallizing Elastomer Networks*	**F. Diehl** UPM Biochemicals GmbH *UPM BioMotion Renewable Functional Fillers (RFF) for a Lighter and more Sustainable Future*
11:45	**F. Martin-Salamanca** Spanish National Research Council (ICTP-CSIC) *A unified physical framework to characterize rubber compounds based on a combination of experimental approaches*	**K. Narynbek Ulu** Decathlon *Opportunities for use of novel sustainable raw materials in rubber formulations in micromobility applications*
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 *Silica / Silane reactivity - Computer modelling as an advanced tool to link with our experiments*	**E. Hanggi** LRCCP *Regeneration of EPDM rubber*
13:45	**J. Itriago** MINES Paris - PSL Research University, CEMEF *Cellularization modeling of a rubber compound in injection molding conditions*	**L. Gschwind** University of Applied Science Osnabrück *Recycling of EPDM rubber waste by continuous mechanochemical devulcanization*
14:15	**M. Abdelmoniem** Ostfalia university of applied sciences *Numerical Studies on the Dissipation behavior of Elastomers and it's Effect on the Applied Loading Conditions*	**A. Isayev** University of Akron *Ultrasound-aided extrusion technology for recycling of rubbers and crosslinked polyolefins*
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 *Improving the prediction quality of multibody simulations by using 3-D material models for filled elastomers*	**J. Laages** Deutsches Institut für Kautschuktechnologie e. V. *De-vulcanization efficiency for sulfur crosslinked natural rubber and styrene butadiene rubber*
15:30	**Poster Award + Closing Remarks**	

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