

11. Kautschuk Herbst Kolloquium
26. – 28. November 2014

11th Fall Rubber Colloquium
November 26 – 28, 2014

Scientific Program



Deutsches Institut für Kautschuktechnologie e.V.

11th Fall Rubber Colloquium ***November 26 – 28, 2014***



Scientific Program

Wednesday, November 26, 2014

Opening ceremony

11:00

U. Giese

11:10

I. Hering

Ministry of Economy, Labour and Traffic

11:30

S. Kawahara

Nagaoka University of Technology (JP)

*Preparation and Properties of
Natural Rubber with Organic-Inorganic Nanomatrix Structure*

12:00

G. Heinrich

Leibniz-Institut für Polymerforschung Dresden e. V. (DE)

*The ‚Merseburg‘ - Model of Rubber Elasticity:
From Molecule to Rubber Components*

12:30 Lunch



Wednesday, November 26, 2014

Session A - Afternoon

Elastomer Chemistry

Chairperson: A. Blume

- 13:30 **G. Thielen**, Goodyear Innovation Center Luxembourg (LU)
High Tg Rubber Blend Systems
- 14:00 **C. Döring**, Styron Deutschland GmbH (DE)
Multi-functionalized SSBR & Compound Vulcanizate Performance Characteristics
- 14:30 **M. van Duin**, LANXESS Elastomers (NL)
EPDM: back to basics
- 15:00 **I. Hudec**, Slovak University of Technology, Bratislava (SK)
Application of polymers from renewable resources as a filler or component of rubber blends

15:30 **Coffee Break**

Elastomer Physics

Chairperson: J. Meier

- 16:00 **S. Nitzsche**, Inst. for Machine Elements, TU Freiberg (DE)
Adhesion of Rubber - from Demolding to a Mechanical Crackmodel
- 16:30 **M. Strangfeld**, Research Institute of Leather and Plastic Sheeting (FILK)
Influencing factors for automotive seal squeak and numerical predictive analysis
- 17:00 **P. Rublon**, LRCCP (FR)
Fatigue crack growth rates measurements in filled SBR samples: effect of antioxidants
- 17:30 **G. Schneider**, Forschungszentrum Jülich GmbH (DE)
From Polymer Conformation and Dynamics to Macroscopic Properties of Nanocomposites

18:00 **Poster Session**



Wednesday, November 26, 2014

Session B - Afternoon

Simulation and Modelling

Chairperson: J. Ihlemann

- 13:30** O. Albohr, Pirelli Deutschland GmbH (DE)
Simulation is nothing without control (of the right input parameter)
- 14:00** N. H. Kröger, Simulation & Continuum Mech., DIK Hannover (DE)
Parameter identification for visco-hyperelastic material models
- 14:30** H. Wulf, Inst. of Mech. and Thermodyn., TU Chemnitz (DE)
Simulation and analysis of time-dependent self-organization processes in filled rubber
- 15:00** J. Lejeune, LRCCP (FR)
Viscoelastic Simulation at low temperature of AEM Rubber for Sealing Applications

15:30 Coffee Break

Elastomer Chemistry

Chairperson: I. Hudec

- 16:00** M. Lückmann, DuPont de Nemours Deutschland GmbH (DE)
Crosslinking of Fluoroelastomers and Ethylene Acrylic Elastomers – Influence on Final Properties
- 16:30** P. Posadas, Inst. of Polymer Science & Tech., CSIC (ESP)
New insights into the chemical modification of conventional rubbers
- 17:00** D. Basu, Leibniz-Inst. für Polymerforschung, TU Dresden (DE)
Existence of nano-scalic block co-polymer morphology in ionic elastomer
- 17:30** N. Thu Ha, Dept. of Mat. Science & Tech., Nagaoka UT (JP)
Hydrogenation of natural rubber in latex stage

18:00 Poster Session



Thursday, November 27, 2014

Session A - Morning

New Materials

Chairperson: R. H. Schuster

- 8:30 C. W. Karl, Nanoinitiative Bayern GmbH (DE)
Properties of elastomer composites based on multilayer graphene
- 9:00 R. Sýkora, Slovak University of Technology, Bratislava (SK)
Elastomer Composites with the Effects of Electromagnetic Shielding
- 9:30 D. Wrobel, Momentive Performance Materials GmbH (DE)
Nano structures in silicone rubber – Reinforcement and light scattering on particles
- 10:00 S. Aloui, Material Concepts and Modeling, DIK Hannover (DE)
Magneto-sensitive elastomers based on magnetic filler hybrid systems

10:30 Coffee Break

Rubber Friction and Physics

Chairperson: M. Klüppel

- 11:00 V. Popov, Technische Universität Berlin (DE)
Friction between elastomers and differently shaped rough surfaces
- 11:30 P. Ignatyev, Continental Reifen Deutschland GmbH (DE)
Friction of filled elastomers on rough surfaces: A combined experimental and theoretical study
- 12:00 A. Lang, Deutsches Institut für Kautschuktechnologie e. V.
Temperature and pressure dependence of the friction properties of tire tread compounds on rough granite
- 12:30 R. Beyer, Inst. of Mechanics and Numerical Mechanics, LUH (DE)
A multi-scale approach for thermo-mechanical simulations of tire rolling resistance

13:00 Lunch



Thursday, November 27, 2014

Session B - Morning

Simulation and Modelling

Chairperson: **D. Juhre**

- 8:30** **I. A. Morozov**, Inst. of Continuous Media Mechanics UB RAS (RU)
Structural-mechanical model of filled rubber. From local to macroscopic properties via direct structural mechanical simulation
- 9:00** **D. Sodhani**, Inst. of Applied Mechanics, RWTH Aachen (DE)
Finite element based micromechanical modeling of phase interaction in filler reinforced elastomers
- 9:30** **M. Itskov**, Dept. of Continuum Mechanics, RWTH Aachen (DE)
Micromechanics of inelastic effects in filled rubbers: a generalized network decomposition
- 10:00** **H. Baaser**, Freudenberg R&D Services (DE)
Application of endochronic plasticity on simulation of technical rubber components

10:30 **Coffee Break**

Elastomer Analysis

Chairperson: **U. Giese**

- 11:00** **N. Thuong**, Dept. of Mat. Science & Tech., Nagaoka UT (JP)
Structural characterization of rubber from Lactarius Volemus through 2D-NMR spectroscopy
- 11:30** **A. Blume**, Evonik Industries AG (DE)
Infrared Study of the Silica/Silan Reaction
- 12:00** **D.M. Bielinski**, Inst. of Polymer & Dye Technology, TU Lodz (PL)
Application of Infrared Thermography to Analyse Ageing of Rubber
- 12:30** **M. Wilhelm**, Karlsruhe Institute of Technology (DE)
IR Spectroscopy as a novel On-line Detector for Size Exclusion Chromatography

13:00 **Lunch**



Thursday, November 27, 2014

Session A - Afternoon

Thermoplastic Elastomers

Chairperson: **M. van Duin**

14:00 **R. Mruk**, Goodyear S.A. (LU)

Functionalized Elastomers with Thermo-responsive Thermoplastic Side Chains

14:30 **S. Patermann**, University of Bayreuth (DE)

Influence of different crosslinking systems on the mech. and morph. properties of continuously produced Thermoplastic Vulcanizates

15:00 **M. Tahir**, Leibniz-Inst. für Polymerforschung, TU Dresden (DE)

A new method of preparation and properties of blends based on in-situ synthesized thermoplastic polyurethane-urea and NBR

15:30 **Coffee Break**

Reinforcement and Fillers

Chairperson **M. Galimberti**

16:00 **W Dierkes**, Elastomer Tech. & Engineering, UT (NL)

Influence of silica-polymer bond microstructure on tire-performance indicators

16:30 **L. Tunnicliffe**, Soft Matter Group, QML (GB)

Mechanisms of Particulate Reinforcement of Elastomers at Small Strains

17:00 **L. Guy**, Solvay Silica (FR)

High performance silica reinforced elastomers: a better understanding of the interface nature to reveal the potential of elastomers microstructure

17:30 **N. Rennar**, Plastics and Rubber Technology, FH Würzburg (DE)

Reinforcement of Rubber Compounds by Physical and Chemical Modification of Carbon-Based Fillers

19:00 **Social Event**



Thursday, November 27, 2014

Session B - Afternoon

Rheology

Chairperson: E. Haberstroh

- 14:00** J. Ihlemann, Techn. Universität Chemnitz, Inst. of Mechanics and Thermodynamics
High-precision simulation of rubber components
- 14:30** J. Meier, Henniges Automotive GmbH & Co KG (DE)
Interpretation of Rheological Measurements for Mold Filling Simulations
- 15:00** J. S. Dick, Alpha Technologies (US)
Applications for the RPA extended dynamic range in measuring silanization reactions from the mixing of silica-loaded stocks

15:30 Coffee Break

Elastomer Chemistry

Chairperson: G. Thielen

- 16:00** A. F. Halasa, Dept. of Polymer Science, University of Akron (US)
The Effect of Neodymium-trioctyl Aluminum Catalyst System on the Polymerization of Isoprene-butadiene Rubber and Polyisoprene
- 16:30** S. Schäfer, Inst. of Plastics Processing, RWTH Aachen (DE)
Blow Moulding of Silicone Rubber using platinum catalyzed Curing Systems and Investigation of the Pinch-off Weld Formation
- 17:00** K. Kulbaba, Lanxess Inc. (CA)
A New Generation of Functionalized Butyl Rubber
- 17:30** R. Kalkofen, Lanxess Deutschland GmbH (DE)
Alternative crosslinking concept for Levapren

19:00 Social Event



Friday, November 28, 2014

Session A - Morning

Elastomer Physics

Chairperson: T. Alshuth

- 8:30** **E. Euchler**, Professur Kunststoffe, TU Chemnitz (DE)
Fracture behavior of rubber powder modified rubber blends applied for conveying belts
- 9:00** **R. Hentschke**, Bergische Universität Wuppertal (DE)
Molecular modeling approach to the prediction of mechanical properties of silica-reinforced rubbers
- 9:30** **S. D. Gupta**, HASETRI (IN)
Determination of Heat Build-up of Rubber Compounds by Dynamic Mechanical Analyser – A New Test Method
- 10:00** **M. Ludwig**, Elastomer Physics, DIK Hannover (DE)
Development of a predictive viscoelastic rolling resistance test

10:30 **Coffee Break**

New Applications

Chairperson: H. Geisler

- 11:00** **G. Nijman**, Apollo Tyres Global R&D BV (NL)
Morphing car body surfaces made of rubber for active aerodynamics control
- 11:30** **H. Benning**, Baker Hughes (DE)
Oilfield requirements and drilling fluid influence on elastomers
- 12:00** **A. Das**, Dept of Materials Science, TU Tampere (FI)
Exploitation of general purpose rubbers to sensors, actuators, and flexible ion conductors
- 12:30** **G. Buytaert**, Bekaert NV/SA (BE)
Bekaert steel cord technologies driving sustainable tire solutions

13:00 **Lunch**



Friday, November 28, 2014

Session B - Morning

Nanocomposites

Chairperson: S. Kawahara

- 8:30** **L. Zhang**, University of Chemical Technology, Beijing (CN)
Nonlinear Behavior and Nature of Nanoparticles/Elastomer System by Molecular Dynamic Simulation
- 9:00** **B. Bechem**, Rhein Chemie Rheinau GmbH (DE)
CNT-Masterbatches for Elastomers
- 9:30** **M. Galimberti**, Politecnico di Milano (IT)
Carbon Allotropes for nanocomposites based on Poly(1,4-cis-isoprene)
- 10:00** **A. Rul**, Nanocyl SA (BE)
Next generation CNT/Rubber solutions for Automotive, Oil and Gas and Tire Industries

10:30 **Coffee Break**

Reinforcement and Fillers

Chairperson: M. Gerspacher

- 11:00** **A. Schröder**, Rhein Chemie Rheinau GmbH (DE)
Rhenowave@: Inline Quality Control for Black Rubber Compounds
- 11:30** **J. W. M. Noordermeer**, Elastomer Tech. & Engineering, UT (NL)
Filler-to-Filler and Filler-to-Rubber Interactions in Silica-Reinforced Natural Rubber as visualized by TEM Network Visualization
- 12:00** **T. Dilman**, Elastomer Chemistry, DIK Hannover (DE)
Innovative polymer-filler systems with optimized damping and energy dissipation for the application in truck tires
- 12:30** **K. Yamaguchi**, Bridgestone Corporation (JP)
Approaches towards Sustainable Tyre Materials over the next decade

13:00 **Lunch**



Friday, November 28, 2014

Session A - Afternoon

New Materials

Chairperson: **G. Heinrich**

- 14:00** **S. Kelbch**, Lanxess Deutschland GmbH (DE)
Levapren PXL: New Uniformly Pre-Crosslinked EVM Rubbers
- 14:30** **I. Chodák**, Polymer Institute of the Slovak Academy of Sciences (SK)
Structure of reinforcing carbon network determined by electrical conductivity of the vulcanized rubber mixture
- 15:00** **M. Jaunich**, Federal Inst. for Materials Research & Testing (DE)
Low temperature properties of rubber seals - Influence of gamma irradiation
- 15:30** **M. A. Malmierca**, Inst. of Polymer Science & Tech., CSIC (ESP)
New smart rubbers: Shape memory ionic elastomers with temperature memory effect Marta
- 16:00** **Prof. Dr. Ulrich Giese**
Closing Remarks

Friday, November 28, 2014

Session B - Afternoon

Compounding and Processing



Chairperson: **G. Nijman**

- 14:00** **M. Zabel**, TROESTER GmbH & Co. KG (DE)
Determination of the pre-distribution of flow channels using computational fluid dynamics
- 14:30** **R. Bantle**, Klöckner DESMA Elastomertechnik GmbH (DE)
Automated elastomer moulding cells
- 15:00** **F. Lemke**, Inst. of Plastics Processing, RWTH Aachen (DE)
Extrusion of physically foamed silicone rubber
- 15:30** **S. Brockhaus**, Kunststofftechnik Paderborn (DE)
Investigations about High-Speed Rubber Extrusion
- 16:00** **Prof. Dr. Ulrich Giese**
Closing Remarks

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See you again in Hannover in 2016



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