

6th Fall Rubber Colloquium



at the occasion of the 20th anniversary of the DIK

DORINT Hotel Hannover, November, 10th - 13th 2004

Program

Wednesday, 10.11.2004

14.00	Opening ceremony: <i>Walter Hirche</i> (Niedersächsischer Minister für Wirtschaft, Arbeit und Verkehr) <i>Herbert Schmalstieg</i> (Oberbürgermeister von Hannover) <i>Robert H. Schuster</i> (DIK Hannover)	
	Session A	Session B
	Rheology	FE Simulations
	<u>Chairman:</u> C. Wrana (Lanxess BMS)	<u>Chairman:</u> U. Nackenhorst (Universität Hannover)
15.30	<i>J. Leblanc</i> (University Pierre et Marie Curie [F]) Dynamic testing of intrinsically non-linear viscoelastic materials	<i>Ch. Miehe, S. Göktepe</i> (Institut für Mechanik, Universität Stuttgart) A micromechanism-inspired constitutive approach to the modeling of hysteresis effects in rubbery polymers
16.00	<i>M. Wilhelm</i> (Max Planck-Institut für Polymerforschung, Mainz) FT-Rheology: a very sensitive experimental technique to characterize the non-linear regime in materials	<i>J. Ihlemann</i> (Institut für Mechanik, Universität Hannover) Richtungsabhängigkeiten beim Mullins-Effekt
	<u>Chairman:</u> J. Leblanc (University Pierre et Marie Curie [F])	<u>Chairman:</u> Ch. Miehe (Universität Stuttgart)
16.30	<i>R. C. R. Nunes, L. L. Y Visconte, V. J. R. R. Pita</i> (Universidade Federal do Rio de Janeiro [BR]) <i>J. R. Santos</i> (Petroflex Industriae Comercion [BR]) Rheological behaviour of mineral fillers in shoe sole composite	<i>U. Nackenhorst</i> (Institut für Baumechanik und numerische Mechanik, Universität Hannover) Finite element modelling of rolling tires
17.00	<i>C. Wrana, H. Winkelbach, D. Dijkstra, U. Frenzel</i> (Lanxess/BMS), <i>W. Elbe, T. Schmid</i> (Metzeler) Influence of the molecular architecture on polymer flow properties	<i>M. Achenbach, J. Duarte</i> (Parker Hannifin GmbH) On the constitutive modelling of filled rubber components and utilisation in nonlinear finite element analysis
17.30	<i>H. Winkelbach, C. Wrana</i> (Lanxess/BMS), <i>W. Elbe, T. Schmid</i> (Metzeler) Influence of the molecular architecture on EPDM properties	<i>T. Brüger, M. Rabkin</i> (Vibracoustic GmbH & Co. KG) Anwendung eines dynamischen Materialmodells für die Schädigungsvorhersage
19.00	Social event (Meeting in the hotel lobby)	

Thursday, 11. November 2004

09.00	Plenary lecture: <i>R. Stenger (Adam Opel AG)</i> Virtual vehicle development Chairman: <i>M. Gerspacher</i>	
	Session A:	Session B:
	Reinforcement	Processing/Engineering
	Chairman: <i>M. Gerspacher</i>	Chairman: <i>S. Luther (DIK)</i>
09.40	<i>J. Meier, M. Dämgen, M. Klüppel (DIK)</i> Micromechanics of rubber reinforcement by nano-structured fillers	<i>E. Haberstroh, A. Kremers (Institut für Kunststoffverarbeitung)</i> Extrusion geschäumter Elastomerprofile mittels Stickstoff als physikalisches Treibmittel
10.10	<i>F. R. Costa., M. Abdel-Goad, U. Wagenknecht, G. Heinrich (Leibniz-Institut für Polymerforschung, Dresden)</i> Structural kinetics in filled elastomers and PE/LDH composites	<i>L. Köster (Thyssen-Krupp Elastomertechnik GmbH)</i> Influencing factors and parameters in the extrusion process
10.40	<i>M. De Greiff (IMSA Industrias Metalicas Sudamericanas [CO])</i> Naturkautschuk/Kieselsäure/Weichmacher/Batches Nassweg - Eine Alternative zur Herstellung von Kautschukprodukten	<i>G. Nijman (Vredestein Banden BV, NL-Enschede)</i> Towards higher mixer line productivity by optimising fingerprints
11.10	Coffee break	
	Chairman: <i>G. Heinrich (Leibniz Inst. of Polymer Research)</i>	Chairman: <i>E. Haberstroh (Inst. für Kunststoffverarbeitung)</i>
11.40	<i>D. Göritz, G. Schneider (Universität Regensburg)</i> Verstärkung durch gefällte Kieselsäure	<i>S. Luther (DIK), D. Mewes (Universität Hannover)</i> Determination of operating windows for the calendering process by three dimensional calculation of the flow field
12.10	<i>H.-M. IsseL, L. Steger, A. Bischoff (Rhein Chemie GmbH)</i> Wirkung von Dithiophosphaten in Kieselsäure verstärkten Elastomeren	<i>A. Limper (Thyssen Group), M. Kny (Universität Paderborn)</i> Dust stop systems for internal mixers – An innovative approach
12.40	<i>A. Lion (Universität Kassel)</i> Phenomenological modelling of strain-induced structural changes in filler-reinforced elastomers: a time domain formulation of the Kraus model	<i>P. Ryzko (Freudenberg Forschungsdienste KG)</i> Kautschugerechte Online-Prozessüberwachung als Schlüssel zur verbesserten Bauteilqualität
13.10	Lunch	
	Advanced Materials	Crosslinking
	Chairman: <i>R. C. R. Nunes (Uni. Federal do Rio de Janeiro)</i>	Chairman: <i>J. W. M. Noordermeer (University of Twente)</i>
15.00	<i>R. Parg (Lanxess/BMS)</i> Therban Advanced Technology, the new low molecular HNBR	<i>M. Stephan, H. Dorschner, G. Heinrich (Leibniz Institut of Polymer Research Dresden)</i> Crosslinking of polymers by electron beam irradiation
15.30	<i>D. Achten, C. Wrana (Lanxess/BMS)</i> Optimization of HNBR based formulations for dynamically used applications at elevated temperatures	<i>A. Chapman, Terence Johnson (Tun Abdul Razak Research Centre [GB])</i> The role of zinc in the vulcanization of styrene-butadiene rubbers
16.00	Coffee break	
	Chairman: <i>Y. Ikeda (Kyoto Institute of Technology)</i>	Chairman: <i>M. Stephan (Leibniz Insti. of Polymer Research)</i>
16.30	<i>M. Bogun (Bühler AG), S. Luther (DIK), U. Görl (Degussa AG), H. J. Radusch (Martin-Luther-Universität Halle-Wittenberg)</i> Aktueller Stand zum kontinuierlichen Mischen von rieselfähigen Rubber/Filler-Composites (RFC)	<i>B. Vega, N. Agullo, N. Borros, (Universitat Ramon Lull [E])</i> Study of the influence of microwaves in the mechanism of vulcanization and devulcanization of natural rubber using model compound vulcanisation
17.00	<i>T. Kromminga (Rhein Chemie GmbH)</i> Preblends of powder chemicals as alternative for achieving best dispersibility in rubber compounds	<i>J. W. M. Noordermeer et al. (University of Twente [NL])</i> Zinc loaded clays as activator in sulphur vulcanisation: A new route for zinc oxide reduction in rubber compounds
17,30	<i>J. L. Valentin, et al. (Inst. of Polymer Science+Technology [E])</i> Solvent freezing point depression as a new tool to evaluate rubber compounds properties	<i>W. K. Dierkes et al. (University of Twente [NL])</i> Model compound studies on the devulcanization of natural rubber using 2,3-dimethyl-2-butene
18.00	Poster presentation	

Friday, 12. November 2004

09.00	Plenary lecture: <u>R. P. Hjelm</u> , C. F. Welch (Los Alamos National Laboratory [USA]), et al. Chairman: R.H. Schuster (DIK) Neutron and X-Ray scattering contrast variation methods probe the composition and structure of complex polymers	
	Session A	Session B
	Fillers/Reinforcement	Simulations/Characterization
	Chairman: H. Geisler (DIK)	Chairman: R. H. Schuster (DIK)
09.40	<u>M. Gerspacher</u> Characterization and reinforcing properties of carbon black	<u>F. Tsobnang (ISMANS [F])</u> Applications of molecular modelling and simulation tools to rubber materials
10.10	<u>J. G. Meier, J. Mani, M. Klüppel (DIK)</u> Dielectric analysis of carbon black networks in elastomers	<u>T. Alshuth, J. Mc Namara (DIK), S. Jerrams (Dublin Institut of Technology [IR])</u> Evaluation of local strains in elastomer specimens using 3D image correlation photogravimetry
10.40	<u>Y. Ikeda (Kyoto Institute of Technology [J])</u> "Green" nano-composites prepared from natural rubber and in situ silica	<u>K. Kretschmer (SKZ-KFE GmbH)</u> Computer aided simulation of co-rotating twin screw extruders
11.10	Coffee break	
	Chairman: D. Göritz (Universität Regensburg)	Chairman: U. Giese (DIK)
11.40	<u>T. J. Graule, et al. (EMPA [CH])</u> Synthesis of spherical, non-aggregated silica nanoparticles for nanocomposite coatings	<u>M. Lang, D. Göritz, S. Kreitmeier (Universität Regensburg)</u> Entanglements and structure of polymer networks
12.10	<u>J. H. Hoffstetter, P. J. Lutz (Institut Charles Sadron [F]) et al.</u> Interaction of silica particles with ethoxysilane end-functionalized polymers	<u>W. Kuhn (IIC Innovative ImagingCorp. KG)</u> Grundlagen und Anwendungen der NMR und NMR-Bildgebung in der Gummiindustrie
12,40	<u>O. Klockmann, A. Hasse, D. Bidet (Degussa AG) et al.</u> Modern silane coupling agents for peroxide cure systems	<u>E. Peregi, U. Giese (DIK), W. Kuhn (IIC Innovative ImagingCorp.)</u> Praxisorientierte Anwendung der NMR-Relaxationszeitmethode
13,10	Lunch	
	Polymer Blends	Friction/Testing
	Chairman: N. Vennemann (Fachhochschule Osnabrück)	Chairman: M. Klüppel (DIK)
14.30	<u>K. Menting (Schill + Seilacher AG)</u> Homogenizing resins – How do they improve your polymer blends?	<u>K. Popp, F. Gutzeit, M. Kröger, M. Lindner (Institut für Mechanik, Universität Hannover)</u> Experimentelle Untersuchungen zum dynamischen Verhalten des Reibwertes bei Elastomeren
15.00	<u>M. van Duin (DSM-Research [NL])</u> EPDM-based thermoplastic vulcanisates: Overview, cross linking chemistry and dynamic vulcanisation along the extruder axis	<u>M. Kröger (Institut für Mechanik, Universität Hannover)</u> Adhesion of rubber on smooth and rough surfaces
15.30	<u>J. Oertel, R. Böhm (Kuraray Europe GmbH)</u> Recent styrenic blockcopolymer developments (TP-ES)	<u>A. Müller, A. Le Gal, M. Klüppel (DIK), G. Heinrich (IPF Dresden)</u> Physik der Elastomerreibung auf rauen Oberflächen und Traktionseigenschaften von Reifen
16.00	Coffee break	
	Chairman: R. P. Hjelm (Los Alamos National Laboratory)	Chairman: K. Popp (Universität Hannover)
16.30	<u>D. Lehmann, B. Klüpfel, G. Heinrich (Leibniz-Institut für Polymerforschung), C. Linhart, E. Haberstroh (IKV Aachen)</u> Kopplung von PTFE und Kautschuken – eine neue elastomere Werkstoffklasse	<u>J. Crassous, M. Ballauff, W. Pechhold, (Universität Bayreuth)</u> Piezoelectric axial vibrator (PVA)
17.00	<u>A. Barbe, K. Bökamp, C. Kummerlöwe, T. Lapchenko, H. Sollmann, N. Vennemann (Fachhochschule Osnabrück)</u> Improving the upper temperature limit and oil resistance of SEBS-based thermoplastic elastomers using PPO	<u>T. Alshuth, J. Kroll, S. Eckert-Kastner (DIK)</u> Investigation of high frequency properties of elastomers by ultrasonic spectroscopy
17,30	<u>V. Altstädt, H. Ruckdäschel, et al. (Universität Bayreuth)</u> Compatibilisation of immiscible PPE/SAN blends by triblock terpolymers - processing and properties	<u>M. Warskulat, (Degussa AG)</u> New ISO- and ASTM-Standards for testing carbon black, silica and organosilanes

Saturday, 13. November 2004

	Session A	Session B
	Plasma Treatment	Fracture Mechanics/Fatigue
	<u>Chairman:</u> I. Hudec (Slovak University of Technology)	<u>Chairman:</u> Th. Alshuth (DIK)
09.30	<u>H. Benning</u> , <u>H. Geisler</u> , <u>R. H. Schuster (DIK)</u> Rubber surface modification by atmospheric pressure plasma	<u>M. Kaliske (Universität Leipzig)</u> Simulation of fracture properties of elastomeric material
10.00	<u>N. Tricas</u> , <u>S. Borros (Universität Ramon Lull [E])</u> , <u>R. H. Schuster (DIK)</u> CB modification by plasma techniques	<u>F. Abraham</u> , <u>G. Clauß (FH Heilbronn)</u> , <u>T. Alshuth (DIK)</u> The influence of glass spheres as model flaws on fatigue Life and dynamic crack propagation of elastomers
10.30	Coffee break	
	<u>Chairman:</u> N. Borros (Universitat Ramon Lull)	<u>Chairman:</u> M. Kaliske (Universität Leipzig)
11.00	<u>I. Hudec</u> , <u>M. Jasso (Slovak University of Technology [SR])</u> Plasma treatment and polymerization – Method for adhesion improvement of textile cord to rubber	<u>K. Reincke</u> , <u>W. Grellmann (Martin Luther Universität Halle) et al.</u> Anwendung bruchmechanischer Methoden zur Risszähigkeitsbewertung von Elastomeren
11.30	<u>H. Krump (University of the Free State [ZA])</u> , et al. Physical-morphological changes leading to an increase in adhesion between plasma treated polyester fibres and a rubber matrix	<u>T. Steinweger</u> , <u>M. Flamm</u> , <u>U. Weltin (Universität Hamburg-Harburg)</u> Rechnerische Beurteilung der Schädigung von Elastomerbauteilen unter dynamischer Belastung
12.00	Closing remarks: <u>R. H. Schuster</u>	