THERMOSETTING RESINS 2018

FROM BASICS TO APPLICATIONS

FINAL CONFERENCE PROGRAM

September 25th 2018	
from 8.00 am	**Registration**
9.00 am	**Welcome Tea & Coffee**
10.00 am	**Conference Opening & Plenary Session**
	Monika Bauer (InnoMat GmbH, Teltow, Germany, Chair of the Conference) **Terry McGrail** (University of Limerick, Irish Composites Centre (IComp), Limerick, Ireland)
10.15 am	Session Chair Terry McGrail (Irish Composites Centre (IComp), Limerick, Ireland)
	Plenary Lecture **Zoubair Cherkaoui** (Global Director of Innovation at Huntsman Advanced Materials, Basel, Switzerland) *Trends in high performance thermosetting resins*
11.00 am	Plenary Lecture **David Tilbrook** (Hexcel Composites Limited, Duxford, Cambridge, UK) *Future challenges for aerospace composites*
11.45 am	Plenary Lecture **H. Henning Winter** (Director Laboratory for Experimental Rheology, University of Massachusetts, Amherst, MA, USA) *The solidification rheology of amorphous polymers – Vitrification as compared to gelation*
12.30 pm	**Lunch Break**
2.00 pm	**Plenary Session**
	Session Chair Jean-François Gérard (Université de Lyon, INSA Lyon, IMP, Villeurbanne, France)
	Plenary Lecture **Filip Du Prez** (Group Leader Polymer Chemistry Research Group, Department of Organic and Macromolecular Chemistry, Ghent University, Ghent, Belgium) *Vitrimers: Upcoming recyclable and reshapable thermosets*
2.45 pm	Plenary Lecture **Torsten Gottschalk-Gaudig** (Wacker Chemie AG, Burghausen, Germany) *Silicone resins – An emerging class of binders for fibre reinforced composites?*

3.30 pm	Plenary Lecture **Sascha Pöller & Tim Welter** (Henkel AG & Co. KGaA, Duesseldorf, Germany) *Developing and modeling thermosetting adhesives for composites and multi-material joints*
4.15 pm	**Afternoon Tea & Coffee** **This coffee break is sponsored by:** Henkel
4.45 pm	**Poster Session** 2-minute oral presentations (one pager) of posters. Opening of Poster Session - The poster exhibition will be open all time Session Chair Antonia Neels (Empa – Swiss Federal Laboratories for Materials Science and Technology, Duebendorf, Switzerland)
oral presentation	**Posters** **Author (Institution), *Title***
x	Vladislav Aleshkevich (Institute of New Carbon Materials and Technologies (INUMIT), Moscow, Russia) *C/C composites developed from phthalonitrile based composites*
x	Vivien André (Université de Lyon, INSA Lyon, IMP, Villeurbanne, France) *Core-shell particles with improved dispersibility into epoxy networks*
	Monika Bauer (InnoMat GmbH, Teltow, Germany) *New adhesive films with high glass transition temperature and storage stability at room temperature*
	Mohamed Benachour (University of Oran, Laboratory of Polymers Chemistry, Oran, Algeria) *Synthesis and characterization of triblock copolymer PLA-PEG-PLA catalyzed by Maghnite-H+*
x	Lutz Böwe (KROENERT GmbH & Co. KG, Hamburg, Germany) *Requirements and performance of high precise functional coating technologies for the production of prepreg*
	Yvonne Chowdhury (InnoMat GmbH, Teltow, Germany) *Volume dilatometry - Online investigation of shrinkage during thermal or radiation cure*
	Maarten Delahaye (Ghent University, Department of Organic and Macromolecular Chemistry, Ghent, Belgium) *Internally carboxylic acid-catalysed CANs*
x	Christian Dreyer (Fraunhofer Institute for Applied Polymer Research IAP, Research Division Polymeric Materials and Composites PYCO, Teltow, Germany) *UV-LED curable thermosetting resins and composites thereof - Applications from micrometer to meter scale*
	Marco Grahneis (University of Applied Sciences Muenster, Steinfurt, Germany) *New unsaturated polyesters for thermosets with high heat resistance*

oral presentation	**Posters** **Author (Institution),** ***Title***
	Sergiy Grishchuk (Institut fuer Verbundwerkstoffe GmbH, Kaiserslautern, Germany) *Advanced benzoxazine/epoxy hybrid resins and composites*
	Corinna Grosse (Berliner Nanotest und Design GmbH, Berlin, Germany) *Sensor platform for thermal property measurements of thermosetting resins using the three-omega method*
x	Lutz Hartmann (Fraunhofer Institute for Applied Polymer Research IAP, Research Division Polymeric Materials and Composites PYCO, Teltow, Germany) *Microwave-assisted curing of fiber reinforced plastics - Electromagnetic simulation*
	Valentina Iodice (ITT Motion Technologies, Barge, Italy) *A thermo-mechanical and rheological approach for the characterization of thermosets in automotive friction materials*
	Helene Jeske (Thünen Institute of Agricultural Technology, Braunschweig, Germany) *Biobased epoxides as binders for coating electrodes in lithium-ion-batteries*
	Tolga Kapti (Polisan Kimya, Kocaeli, Turkey) *Use of condensate generated during kiln-drying step of wood as a natural formaldehyde scavenger for urea- and melamine-formaldehyde resins*
x	Mathias Köhler (Fraunhofer Institute for Applied Polymer Research IAP, Research Division Polymeric Materials and Composites PYCO, Teltow, Germany) *Integration of tunable low T_g thermoplastic polymers in thermosetting resins as toughening and damping modifiers*
x	Thoralf Krahl (Humboldt-University of Berlin, Institute of Chemistry, Berlin, Germany) *Novel transparent organic-inorganic composites based on metal fluoride nanoparticles*
x	Cédric Loubat (Specific Polymers, Castries, France) *Tailor-made innovative thermoset resins to validate proof of concept in the industrial world*
	Cédric Loubat (Specific Polymers, Castries, France) *Biobased building-blocks for repairable, reprocessable and recyclable thermoset epoxy resins*
x	Oleg Morozov (Institute of New Carbon Materials and Technologies (INUMIT), Moscow, Russia) *Dual-curing phthalonitril-propargyl ether resins for CFRP*
x	Thomas Richter (University of Applied Sciences Muenster, Department of Chemical Engineering, Steinfurt, Germany) *Dual curing hybrid resin*
x	Harald Stecher (Siemens Gamesa Renewable Energy A/S, Aalborg, Denmark) *How to qualify a resin for SGRE Offshore Integral Blade®*
	Romain Tavernier (Ecole nationale supérieure de chimie de Montpellier ENSCM, Montpellier, France) *Towards formaldehyde-free and fully biobased resoles for aerospace applications*

oral presentation	Posters Author (Institution), *Title*
x	Tobias Urbaniak (Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Bremen, Germany) *Vicinal tricarbonyl compound – The key to reversible crosslinking thermosetting materials*
x	Pradeep Varadwaj (National Institute of Advanced Industrial Science and Technology, Tsukuba City, Japan) *Does the ratio between diglycidyl ether of bisphenol A resin and 4,4'-diaminodiphenyl sulfone hardener affect the materials properties of the resulting cross-linked polymer? A molecular dynamics study*
x	Emma Wood (The University of Sheffield, Department of Physics and Astronomy, Sheffield, UK) *Predicting phase separation in polymer blends that contain branched molecules*

5:45 pm 8:45 pm	**Welcome Reception & Get Together**

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September 26th, 2018		
	Session 1 – Chemistry Session Chair: Brigitte Voit	**Session 2 – Modeling & Characterization** Session Chair: Ambrose Taylor
9.00 am	**Invited Lecture: Dennis W. Smith** *(Advanced Composites Institute, Department of Chemistry, Mississippi State University, MS, USA)* Advanced polymer networks from fluoroalkenes and enediynes	**Invited Lecture: Miroslava Dušková-Smrčková** *(Czech Academy of Sciences, Institute of Macromolecular Chemistry, Prague, Czech Republic)* Ab initio design of binders architecture and optimization of curing conditions for cross-linked polyurethane/polyurea coatings
9.25 am	**Jean-François Gérard** *(Université de Lyon, INSA, IMP, Villeurbanne, France)* High T_g thermoplastic-modified bismaleimide matrices and related composite materials - Fracture mechanics	**Shamil Saiev** *(University of Mons, Mons, Belgium)* Modeling polymer nanocomposites of bio-sourced thermoset resins and carbon nanotubes
9.50 am	**Reinhard Lorenz** *(University of Applied Sciences Muenster, Department of Chemical Engineering, Steinfurt, Germany*) A new class of fast curing high performance UP-resins yielding thermosets with significantly improved thermal properties	**Jannick Duchet-Rumeau** *(Université de Lyon, INSA, IMP, Villeurbanne, France)* Design of functional interfaces in carbon fiber based composite materials
10.15 am	**Jan-Pierre Schneider** *(Schill+Seilacher "Struktol" GmbH, Hamburg, Germany)* Amphiphilic block copolymers based on chain-extended polyester – Role of compatibility and reactive groups	**Angeliki Chanteli** *(University of Limerick, Irish Composites Centre (IComp), Limerick, Ireland)* Non-crimp glass fibre/thermoplastic composites with functional surface properties
10.40 am	**Morning Tea & Coffee**	
	Session 3 – Green Chemistry Session Chair: Filip Du Prez	**Session 4 – Characterization Methods** Session Chair: Walter Stanley
11.15 am	**Invited Lecture: Rolf Mülhaupt** *(Institute for Macromolecular Chemistry, Freiburg Materials Research Center FMF, University of Freiburg, Freiburg, Germany)* Isocyanate-free routes to multifunctional bio-based polyhydroxyurethane thermosets and composites	**Antonia Neels** *(Empa - Swiss Federal Laboratories for Materials Science and Technology, Duebendorf, Switzerland)* X-ray analytical methods to understand polymer functionality
11.40 am	**René Saint-Loup** *(Roquette, Lestrem, France)* Isosorbide as a building block for thermosetting resins	**Suzanne Morsch** *(University of Manchester, School of Materials, Manchester, UK)* AFM-IR insights into epoxy resin nanostructures

	Session 3 – Green Chemistry Session Chair: Filip Du Prez	Session 4 – Characterization Methods Session Chair: Walter Stanley
12.05 pm	**Songqi Ma** *(Chinese Academy of Sciences, Ningbo Institute of Materials Technology and Engineering, Ningbo, China)* High-performance recyclable thermosets from lignin derivative vanillin	**Corinna Grosse** *(Berliner Nanotest and Design GmbH, Berlin, Germany)* A novel sensor platform for thermal property measurements of thermosetting resins using the three-omega method
12.30 pm	**Jocelyn Clénet** *(Université de Lyon, INSA, IMP, Villeurbanne, France)* Original route for tuning biobased oligoesters structures as thermoset precursors	**Nessa Fereshteh Saniee** *(University of Warwick, Coventry, UK)* Cryomilling: A critical step for accurate determination of degree of cure and resin content in carbon fibre reinforced thermosetting composites
1.00 pm	**Lunch Break**	
	Session 5 – (Green) Chemistry Session Chair: Jannick Duchet-Rumeau	**Session 6 – Influencing Network Structure & Application** Session Chair: Miroslava Dušková-Smrčková
2.15 pm	**Lérys Granado** *(Université de Montpellier, ICGM, ENSCM, Montpellier, France)* Crosslinking mechanisms and kinetics of an innovative formaldehyde-free resole, for aerospace applications	**Björn Thorge Riecken** *(Hamburg University of Technology, Institute of Polymers and Composites, Hamburg, Germany)* Influence of the polymer network structure on the thermal stability, the thermal and mechanical properties of epoxy
2.40 pm	**Niamh Nash** *(University of Limerick, Irish Composites Centre (IComp), Limerick, Ireland)* Bio-based epoxy resin systems as potential alternatives to petroleum-based epoxy matrices in marine fibre-reinforced polymer composites	**Roderick Ramsdale-Capper** *(The University of Sheffield, Materials Science and Engineering, Sheffield, UK)* Influence of phenyl ring substitution position on amine cured EP resin properties
3.05 pm	**Leïla Bonnaud** *(Materia Nova, Mons, Belgium)* Polybenzoxazine technology for lightweight and high-performance composites	**Laurence Bailly** *(Université de Toulouse, LGP, INP-ENIT, Tarbes, France)* Structure study of two cyanate ester resins
3.30 pm	**Alessandro Napoli** *(Huntsman Advanced Materials, Basel, Switzerland)* Novel latent hardeners and catalysts for epoxy resins	**Agnieszka Tercjak** *(University of the Basque Country, San Sebastian, Spain)* Nanostructured thermosetting systems with thermo- and electro-responsive
4.00 pm	**Afternoon Tea & Coffee**	

	Session Chair: Boris Bulgakov	Session Chair: Songqui Ma
4.30 pm	**Sébastien Pruvost** *(Université de Lyon, INSA, IMP, Villeurbanne, France)* Epoxy-Boron nitride composites for high voltage application	**Belén Redondo Foj** *(Aimplas, Valencia, Spain)* Development of an innovative manufacturing process for the in-LINE COAting of pultruded composites (COALINE project)
4.55 pm	**Xiaoqing Zhang** *(CSIRO Manufacturing, Clayton,VIC, Australia)* Development of thermosetting resins to improve resin performance for industrial applications	**Jan Schiller** *(CTC Stade GmbH, Stade, Germany)* High-pressure RTM in aerospace industry
5.20 pm	**Frank Osterod** *(Cariant Plastics & Coatings, Deutschland GmbH, Huerth, Germany)* Managing flame retardant performance in modern thermoset applications	**Jarlath McHugh** *(BMW Group, Landshut, Germany)* Characterisation of release agents used in resin transfer moulding (RTM) and liquid compression moulding (LCM) processes
7.00 pm	**Conference Dinner (for registered attendees)**	

September 27th, 2018		
	Session 7 – Processing Session Chair: Zoubair Cherkaoui	**Session 8 – Toughening** Session Chair: David Tilbrook
9.00 am	**Invited Lecture: Eike Langkabel** *(Evonik Resource Efficiency GmbH, Marl, Germany)* Uretdione – A versatile building block for outstanding new prepreg systems	**Invited Lecture: Ambrose Taylor** *(Faculty of Engineering, Department of Mechanical Engineering, Imperial College London, London, United Kingdom)* Toughening epoxies using nanoparticles
9.25 am	**Dirk Achten** *(Covestro Deutschland AG, Leverkusen, Germany)* New isocyanate based thermoset composite matrix materials with extreme UV, chemical and weathering resistance	**Christoph Uhlig** *(Fraunhofer Institute for Applied Polymer Research IAP-PYCO, Teltow, Germany)* The relationship between thermoset resin compressive yielding behaviour and toughenability in addition curing resins
9.50 am	**Boris Bulgakov** *(Institute of New Carbon Materials and Technologies (INUMIT), Moscow, Russia)* Advanced phtalonitrile resins for out-of-autoclave composite manufacturing	**Alexandre Vermogen** *(Arkema France, Pierre Benite, France)* Latest innovation in core/shell toughening agents for thermosets and composites
10.15 am	**Bethany Russell** *(University of Bristol, Bristol Composites Institute (ACCIS), Bristol, UK)* The processing of a novel polymer matrix for wind turbine blades	**Eleonore Mathis** *(CNRS and Solvay, St. Fons, France)* Thermoset composites from soluble thermoplastic technology: control of morphology, in relation with applicative properties

10.40 am	**Morning Tea & Coffee**	
	Session 9 – Chemistry Session Chair: Dirk Achten	**Session 10 – Characterization & Application** Session Chair: Reinhard Lorenz
11.15 am	**Brigitte Voit** *(Leibniz Institute of Polymer Research Dresden IPF, Dresden, Germany)* Hyper-branched polymers as important components in coatings and resins	**Jérémy Horion** *(UCL, Louvain-la-Neuve, Belgium)* Using zinc oxide nanoparticles to improve the thermal stability of a high-performance benzoxazine resin
11.40 am	**Maarten Delahaye** *(Ghent University, Department of Organic and Macromolecular Chemistry, Ghent, Belgium)* Internally acid-catalysed covalent adaptable networks	**Annika Wagner** *(Profactor GmbH, Steyr-Gleink, Austria)* Development of novel high-temperature polyimide-like inks for PolyJet 3D printing – Curing kinetics and properties of printed material
12.05 pm	**Katharina Koschek** *(Fraunhofer IFAM, Bremen, Germany)* Synthetic approaches to mouldable and recyclable thermosetting lightweight materials	**Michael Jaeger** *(Ashland Technologies GmbH, Kehl, Germany)* High temperature resins and their use in hot flue gas applications
12.30 pm	**Josef Brandt** *(Leibniz-Institute of Polymer Research Dresden IPF, Dresden, Germany)* Temperature dependent size exclusion chromatography for the in situ investigation of thermoreversibly bonding polymers	**Uwe Mueller** *(Kompetenzzentrum Holz GmbH, Linz, Austria)* Inline cure monitoring in engineered wood with paper sensors - Inspiration for carbon prepregs
1.00 pm	**Lunch Break**	
End of Conference		