Karlsruhe Institute of Technology

CoDiCo FRP

Symposium of the International Research Training Group IRTG/ICRC

Integrated Engineering of Continuous-Discontinuous Long Fiber Reinforced Polymer Structures

May 18 - 20, 2021

8 am – 2 pm (Canadian time)

2 pm – 8 pm (German time)

Karlsruhe Institute of Technology

Scientific Program IRTG/ICRC Composites Workshop

Time	Program	Presenter/Moderator
	Monday, 17.05.2021	
19:00 – 22:00	**Graduate Workshops - Mechanical Simulation of Composite Materials**	*Altenhof/Montesano*
	Tuesday, 18.05.2021	
14:00 – 14:30	**Welcome and Introduction**	
14:00 – 14:10	Status report of GRK 2078	*Böhlke*
14:10 – 14:20	Status report of ICRC	*Wood*
14:20 – 14:25	UWO/FPC - Challenges and Perspectives	*Ugresic*
14:25 – 14:30	KIT/ICT - Challenges and Perspectives	*Henning*
14:30 – 16:00	**Overview Presentations of GRK 2078**	
14:30 – 14:45	RA Characterization	*Rohrmueller*
14:45 – 15:00	RA Technology	*Bretz*
15:00 – 15:15	RA Simulation	*Lang*
15:15 – 15:30	RA Design	*Richter*
15:30 – 16:00	**Overview Presentation of ICRC CREATE**	*Wood*
16:30 – 17:00	**Break and Poster Visits**	
17:00 – 18:20	**Plenary**	
17:00 – 17:30	Produce Composites More Efficiently	*Louis Kaptur*
17:30 – 18:00	Simutence	*Doerr*
18:00 – 18:20	MITACs Globalink-RISE funding	*Joseph Santarelli*
18:20 – 19:00	**Poster Visits**	
	Wednesday, 19.05.2021	
14:00 – 14:40	**RA Characterization**	*Thompson/Weidenmann*
14:00 – 14:10	Interface Characterization	*Rohrmueller*
14:10 – 14:20	Microstructure Characterization of SMC	*Schoettl*
14:20 – 14:30	Fatigue damage behavior of continuous-discontinuous sheet molding compounds	*Bartkowiak*
14:30 – 14:40	Discussion	

14:40 – 15:20	**CREATE Session 1**	
14:40 – 14:50	Damage evolution in NCF CFRP laminates under quasi-static tension	*Suratkar*
14:50 – 15:00	Composite Compression Co-moulding: a Warpage Reduction Investigation	*Knezevic*
15:00 – 15:10	Acoustic Processing Techniques for Controlled Oriented Composite Material	*Bedrosian*
15:10 – 15:20	Discussion	
15:20 – 16:10	**RA Technology**	*Hubert/Henning*
15:20 – 15:30	CoDiCoFRTS process and material advancement	*Ilinzeer*
15:30 – 15:40	Robotic Swing Folding of three-dimensional UD-tape-based Reinforcement Structures	*Kupzik*
15:40 – 15:50	T3: Function-oriented quality assurance of CoDiCo-SMC	*Bretz*
15:50 – 16:00	Damage-free blanking of sheet molding compound	*Langer*
16:00 – 16:10	Discussion	
16:10 – 16:30	**Break and Poster Visits**	
16:30 – 17:20	**RA Simulation**	*Altenhof/Schneider*
16:30 – 16:40	Inverse Parameter Identification on SMC and Fiber Orientations	*Bauer*
16:40 – 16:50	Thermomechanical Modeling and Characterization of SMC Composites	*Lang*
16:50 – 17:00	SMC composite damage and failure modeling	*Goerthofer*
17:00 – 17:10	Phase-field modeling of crack propagation in FRTS	*Schoeller*
17:10 – 17:20	Discussion	
17:20 – 18:10	**CREATE Session 2**	
17:20 – 17:30	Modelling of Resin Infiltration and Curing in Carbon Fibre Reinforced Plastics	*Sherratt*
17:30 – 17:40	Development and Experimental Verification of a Strain-Rate Dependent Multiscale Modelling Framework for Non-crimp Fabric Composite	*Rouf*
17:40 – 17:50	CRTM process simulation with highly reactive resin systems	*Barcenas*
17:50 – 18:00	Bone-Inspired 3D Printable nanocomposite biomaterials	*Hashemi*
18:00 – 18:10	Discussion	
18:10 – 18:50	**RA Design**	*Johrendt/Kärger*
18:10 – 18:20	Mesoscale simulation of the mold filling process of Sheet Molding Compound	*Meyer*

18:20 – 18:30	Bead Optimization of SMC structures	*Revfi*
18:30 – 18:40	Systematic to measure and model the maturity of objectives for the improvement of the product maturity in the early phase of product development	*Richter*
18:40 – 18:50	Discussion	
18:50 – 19:30	**Poster Visits**	
Thursday, 20.05.2021		
14:00 – 16:45	**Meetings**	
14:00 – 14:15	Collaboration KIT and UWO	*Böhlke, Wood*
14:15 – 14:45	Introduction to FPC@Western	*Ugresic*
14:45 – 15:15	Presentation of 3rd Gen.	*3rd gen. doctoral students*
15:15 – 16:15	**Part 1:** Breakout sessions for each RA **Part 2:** Breakout sessions for misc topics	
16:15 – 16:45	**Summary and conclusion**	*Thompson/Wood*

Participants

Members and Partners of DFG GRK 2078

- Miriam Bartkowiak, Institute of Applied Materials, KIT
- Julian Bauer, Institute of Mechanics, KIT
- Juliane Blarr, Institute of Applied Materials, KIT
- Prof. Dr.-Ing. Thomas Böhlke, Institute of Engineering Mechanics, KIT
- Lucas Bretz, Institute of Production Science, KIT
- Nicolas Christ, Institute of Applied Materials, KIT
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- Sebastian Gajek, Institute of Engineering Mechanics, KIT
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- Patrick Haberkern, Institute of Product Engineering, KIT
- Prof. Dr.-Ing. Frank Henning, Institute of Vehicle System Technology, KIT
- Katja Höger, Institute of Production Science, KIT
- Dr.-Ing. Jörg Hohe, Fraunhofer IWM
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Canadian Partners

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- Prof. Dr. Colin Denniston, University of Western Ontario
- Prof. Dr. Andrew N. Hrymak, University of Western Ontario
- Prof. Dr. Pascal Hubert, McGill University
- Prof. Dr. Jennifer Johrendt, University of Windsor
- Prof. Dr. John Montesano, University of Waterloo
- Prof. Dr. Michael Thompson, McMaster University
- Prof. Dr. Ovidiu-Remus Tutunea-Fatan, University of Western Ontario
- Prof. Dr. Jeffrey Wood, University of Western Ontario
- Dr.-Ing. Dominik Dörr, University of Western Ontario
- Modupe Ikenyei, University of Western Ontario
- Vanja Ugresic, Fraunhofer Project Centre for Composites Research at Western

Canadian Doctoral Students

- Navid Afrasiabian, University of Western Ontario
- Morteza Alebooyeh, University of Windsor
- Austin Bedrosian, McMaster University
- Matthew Bondy, University of Windsor
- Thomas Chang, University of Western Ontario
- Leonardo Barcenas Gomez, McGill University
- Benjamin Harvey, University of Waterloo
- Stanislav Ivanov, University of Western Ontario
- Jierui Jian, McMaster Manufacturing Research Institute
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- Anthony Sheratt, University of Western Ontario
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- Cheng Xu, University of Western Ontario
- Yuheng Zhou, University of Waterloo

Organizers

International Composites Research Centre (ICRC) https://www.eng.uwo.ca/icrc/
Prof. Dr. Jeffrey Wood, Academic Director

International Research Training Group (DFG GRK 2078) www.grk2078.kit.edu/
Integrated Engineering of Continuous-Discontinuous Long Fiber Reinforced Polymer Structures
Prof. Dr.-Ing. Thomas Böhlke, Speaker
Prof. Dr.-Ing. Frank Henning, Co-Speaker

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