

Program

2nd Annual ICRC/IRTG
Summer Workshop and Symposium
on Composite Materials

July 17 – 21, 2017
The University of Western Ontario

Western  International Composites
Research Centre (ICRC)

Week-at-a-Glance

2017 ICRC/IRTG Composites Workshop

	Mon. 7/17	Tues. 7/18	Wed. 7/19	Thurs. 7/20	Fri. 7/21
	Technical Tours	Meetings and Poster Session	Technical Program I	Technical Program II	Social Tours
Morning	Fraunhofer Project Centre Armatec	ICRC/IRTG Executive Mtgs Book Project Self-organized research mtgs	Welcoming remarks Simulation	Materials	Toronto or Niagara Falls
Lunch	Box Lunch in transit		Essex Hall	Essex Hall	
Afternoon	Siemens Wind Turbine Mfg. (Tillsonburg)	Self-organized research mtgs Poster Session	Design	Processing / Technology	
Dinner		BBQ in TD Garden	Workshop Banquet The Mercato – Brescia College	Brewery tour and dinner Toboggan Brewing Company	
Evening					

Monday July 17, 2017

Technical Tours

0745	Congregate in Parking lot of Ontario Hall	
0800	Depart Ontario Hall	
0830	Arrive Fraunhofer Project Centre	
0830 - 0920	Tour Fraunhofer Project Centre	
0930	Depart Fraunhofer Project Centre	
0945	Arrive at Armatec	
1000 - 1130	Presentation and Tour of Armatec Facilities	
1145	Depart Armatec	
1145 - 1215	Travel to Diamond Aircrafty (Boxed Lunch in Transit)	
1230 - 1400	Presentation and Tour of Diamond Aircraft	
1410 - 1430	Travel to WindEEE	
1430 - 1600	Tour of WindEEE facility	
1610 - 1645	Return to Ontario Hall	

Tuesday July 18, 2017

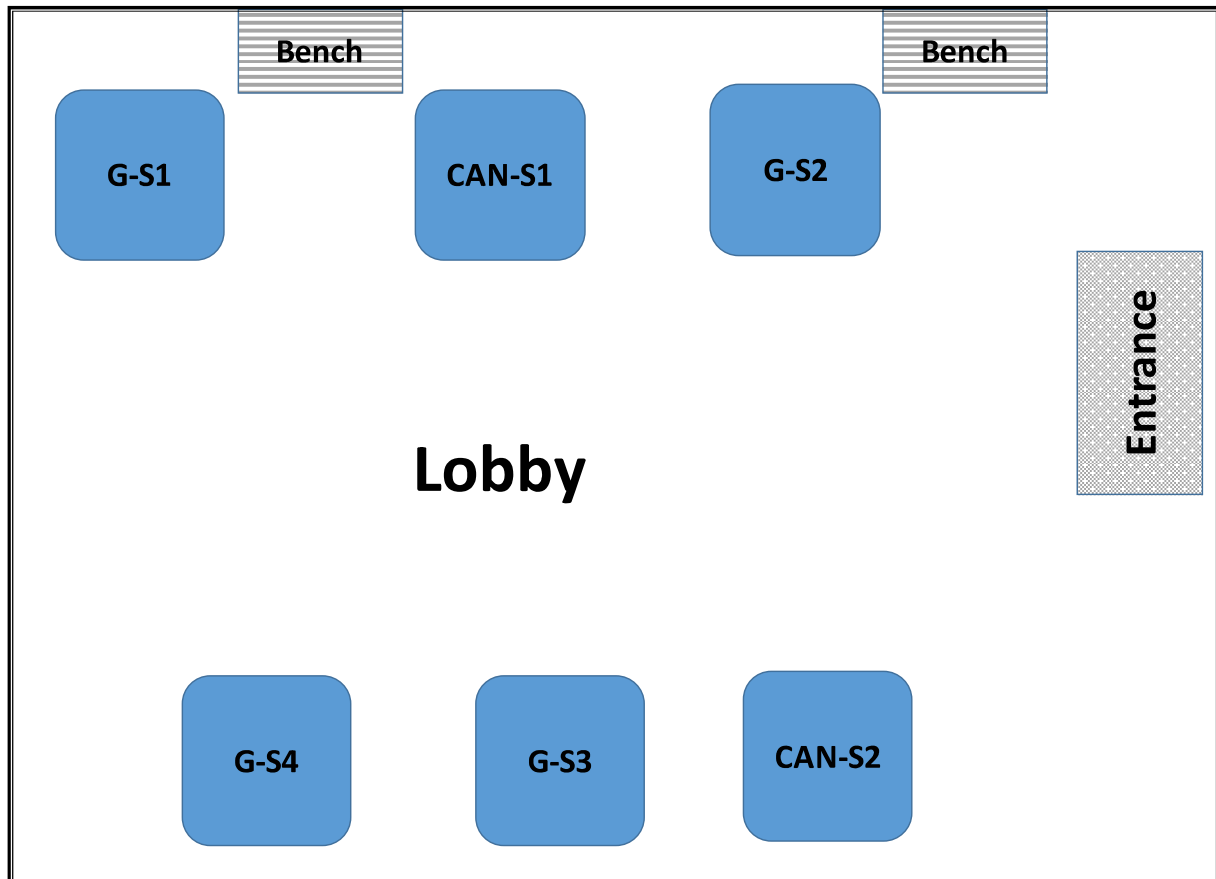
Research Meetings and Poster Session

0900	IRTG/ICRC Book Project (SEB 2009b) <i>Böhlke, Henning Hrymak, Wood</i>	Unscheduled time for self-organized research meetings
1000	ICRC CREATE Proposal (SEB 2009b) <i>Wood, Hrymak Böhlke, Henning and others as interested</i>	
1200	Unscheduled time for self-organized research meetings	
1500	Poster Session CMLP Atrium	
1730	BBQ CMLP Atrium and TD Garden	

Tuesday July 18, 2017

Poster Session

Session S:



G-S1: Two-Scale Thermochemomechanical Simulation of the Curing Process of FRTs, *Bertóti*

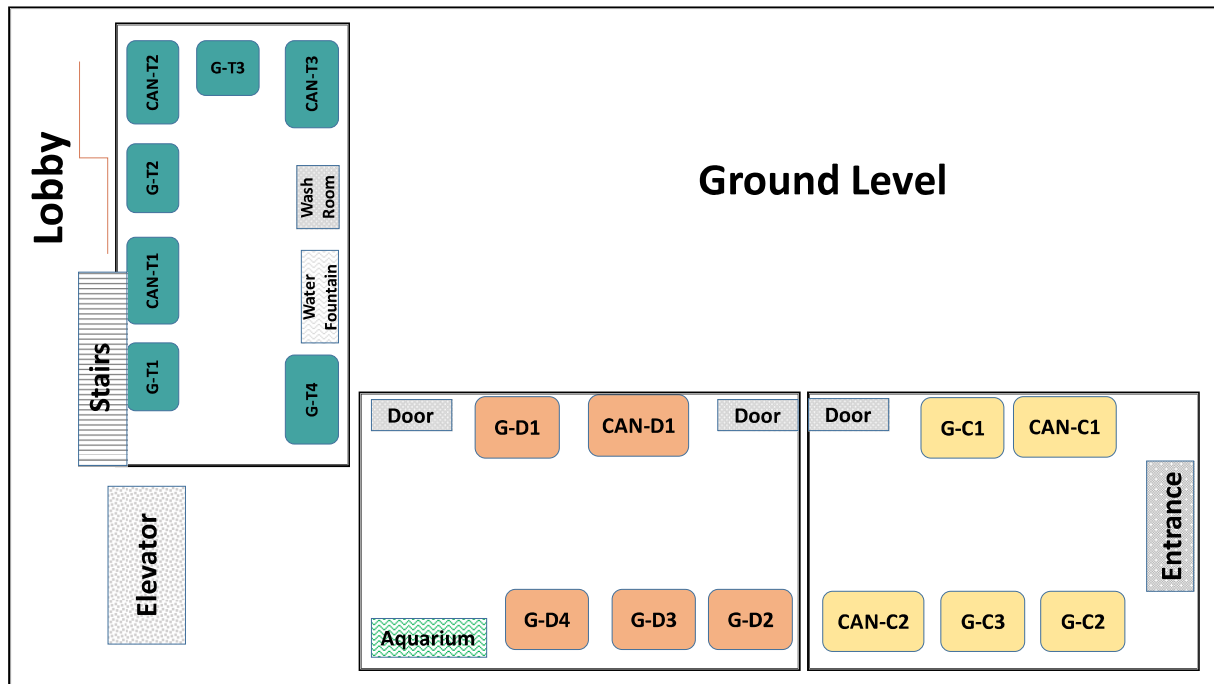
G-S2: Mean Field Models for DiCoFRP and CoDiCoFRP, *Görthofer*

G-S3: Micromechanical Finite Element Simulations of CoFRP, DiCoFRP and CoDiCoFRP, *Kehrer*

G-S4: Phase-Field modeling of thermo-mechanical processes in FRTS and FRTP, *Schwab*

CAN-S1: Incorporating fibre orientation into the functionally graded interphase model, *Sabiston*

CAN-S2: Numerical Performance Prediction of a Composite Automotive Suspension Lower Arm, *Ma*



G-D1: Production Oriented Dimensioning of Local Patches, *Fengler*

G-D2: Topology optimization methods for DiCoFRP, *Spadinger*

G-D3: Design Guidelines, *Butenko*

G-D4: Fiber orientation evolution and anisotropic viscosity of DiCoFRP, *Bertóti*

CAN-D1: High Rate Tensile Characterization of PA66/CF LFT, *Bondy*

G-C1: MicroMechInterface: Characterization and Modeling of the Interface Properties of (CoDiCo-) FRP, *Schober*

G-C2: Microstructure Characterization, *Pinter*

G-C3: Continuous-discontinuous SMC: Effect of "hybridization" on mechanical material properties, *Trauth*

CAN-C1: Assessment of Surface Defects in Class-A SMC Panels, *Heer*

CAN-C2: Investigation on the Mechanical Behaviour of Glass Fiber/Polyamide 6 D-LFT Composites, *Liu*

G-T1: Process Simulation and Rheological Characterization of CoDiCoFRP, *Hohberg*

G-T2: Automated Integrated Handling and Preforming, *Kupzik*

G-T3: Quality Assurance System for the Production of CoDiCoFRP components, *Zaiß*

G-T4: Preparation of CoDiCo-FRP structures for subsequent joining operations, *Helfrich*

CAN-T1: The effect of backing material profile on continuous carbon fibre severing, *Freeman-Gibb*

CAN-T2: In Mold Flow of Long Fibers in Compression Molding Process, *Meirson*

CAN-T3: The Polyflow simulation of flow in D-SMC, *Mohtagi*

Wednesday July 19

Technical Program 1

0830	Arrival and Coffee/Tea	London Hall
0900	Welcoming Remarks <ul style="list-style-type: none">• Lise Laporte, Senior Director, Western International• Andy Hrymak, Dean, Faculty of Engineering• Jeff Wood, Director, ICRC• Thomas Boehlke, Spokesperson, IRTG	
0915	Technical Session I – Simulation (Chair: W. Altenhof)	
0915	Malte Schemmann <i>Two-scale Anisotropic Damage Modeling of Debonding and Matrix Damage in SMC: Model Theory</i>	
0940	Johannes Görthofer <i>Two-scale Anisotropic Damage Modeling of Debonding and Matrix Damage in SMC: Implementation and Validation</i>	
1005	Pascal Pinter <i>Study on Representative Volume Element for various Microstructures</i>	
1030	Coffee Break	
1050	Trevor Sabiston <i>Incorporating Fibre Orientation in the Functionally Graded Interphase Framework</i>	
1115	Tom Ma <i>Numerical Performance Prediction of a Composite Automotive Suspension Lower Arm</i>	
1140	Rudolf Neumann <i>Two-scale Thermochemomechanical Simulation of the Curing Process of Fiber Reinforced Thermosets</i>	
1205	Felix Schwab <i>Curing process of fibre-reinforced thermosets: Micro-scale simulations based on the phase-field method</i>	
1230	Lunch	Essex Hall Cafeteria
1400	Technical Session II – Design (Chair: J. Johrendt)	London Hall
1425	Markus Spadinger <i>Topology optimization method for compression molded fiber reinforced polymer structures</i>	
1450	Róbert Bertóti <i>Fiber-Orientation-Evolution Models for Compression Molding of SMC</i>	
1515	Coffee Break	
1530	Benedikt Fengler <i>Multi-objective patch optimization for discontinuous fiber reinforced parts under consideration of manufacturing constraints</i>	

1555	Matthew Bondy <i>Micromechanics modelling and inverse microstructure characterization of PA6/CF LFT</i>	
1620	Viktoriia Butenko <i>Design Guidelines 2.0 to support design process of fibre-reinforced plastics</i>	
1800 1900	Conference Banquet Cocktails and Appetizers Dinner	Brescia College Mercato I

Thursday July 20

Technical Program 2

0830	Arrival and Coffee/Tea	London Hall
0900	Technical Session III – Materials (Chair: M. Thompson)	
0900	Sebastian Gajek <i>Biaxial tensile tests and microstructure-based inverse parameter identification of inhomogeneous SMC composites</i>	
0915	Loredana Kehrer <i>Effective thermoelastic material properties and experimental investigations of pure and glass fiber reinforced SMC</i>	
0940	Michael Schober <i>Combined Macro- and Micro-Mechanical Analysis of Instable Crack Propagation in Interlaminar Fracture Toughness Tests</i>	
1005	Jonathan Tham <i>Phenomenological modelling of SMC composites</i>	
1030	Coffee Break	
1050	Keynote Speaker: Kestutis Sonta, General Motors <i>TBD</i>	
1135	Anna Trauth <i>Continuous-discontinuous SMC: Effect of "hybridization" on mechanical material properties</i>	
1200	Lunch	Essex Hall Cafeteria
1330	Technical Session IV – Technology/Processing (Chair: T. Kuboki)	London Hall
1330	Keynote Speaker: Louis Kaptur, Dieffenbacher North America Inc. <i>Compression Molding Technologies for the Mass Production of Fiber Reinforced Plastic Components</i>	
1420	Daniel Kupzik <i>Handling of unidirectionally reinforced prepreg for the production of CoDiCo Parts</i>	
1445	Evan Freeman-Gibb <i>The effect of backing material profile on continuous carbon fibre severing</i>	

1510	Coffee Break	
1530	Martin Hohberg <i>Edge and block flow based rheological characterization and process simulation of DiCoFRTS considering the compressibility during the molding process</i>	
1555	Atieh Mohtagi <i>Simulation of compression molding of direct sheet molding compound</i>	
1620	Marielouise Zaiß <i>Multisensor measurement system for internal and external defects of semi-finished and cured SMC</i>	
1645	Gleb Meirson <i>In Mold Flow of Long Fibers in Compression Molding Process</i>	
1705	Anton Helfrich <i>Machinability of Continuous-Discontinuous Fiber Reinforced Polymer Structures</i>	
1730	Navraj Heer <i>Assessment of Surface Defects in Class-A SMC Panels</i>	
1900	Brewery Tour and Dinner Toboggan Brewing Company 585 Richmond Street, London, ON	

Friday July 21

Social Program

Niagara Falls Excursion

We have arranged for bus transportation to Niagara Falls for up to 40 people at a cost of \$40/person. A sign-up sheet will be available Tuesday through Thursday to book you seat on the bus.

- Departure 8:00am from Ontario Hall.
- Return approximately 8:00pm

In addition to sightseeing, there are a wide variety of activities to be enjoyed in and around Niagara Falls. Visit <https://www.niagarafallstourism.com> to start planning your day.

These attractions come highly recommended:

- Whirlpool Jet Boats (you **will** get wet): <http://www.whirlpooljet.com>
- Niagara Cruises (formerly *Maid of the Mist*): <https://www.niagaracruises.com>
- Journey behind the Falls: <https://www.niagaraparks.com/visit/attractions/journey-behind-the-falls/>

Toronto

Some people indicated a desire to visit Toronto. The simplest approach is to take the train from London to Toronto (Union Station). This puts you two blocks from the waterfront in the heart of downtown.

- Trains leave London/arrive in Toronto at:
 - 06:25/08:35, 07:30/10:04, 07:32/10:53 and 11:02/13:11
- Trains leave Toronto/arrive in London :
 - 16:35/18:49, 17:30/19:55, 17:40/21:09,19:35/21:45
- Reservations (starting at \$90 return) can be made online at www.viarail.ca

Participants

Keynote Speakers

Mr. Kestutis Sonta, *General Motors*

Mr. Louis Kaptur, *Dieffenbacher North America*

Scientists and Institutions

Canada

Prof. Jeffrey T. Wood, *Mechanical & Materials Engineering*

Prof. Andrew N. Hrymak, *Chemical & Biochemical Engineering*

Prof. Takashi Kuboki, *Mechanical & Materials Engineering*

Prof. Remus O. Tutunea-Fatan, *Mechanical & Materials Engineering*

Prof. Colin Denniston *Applied Mathematics, Physics & Astronomy*

The University of Western Ontario

Prof. William Altenhof, *Mechanical, Automotive & Materials Engineering*

Prof. Jennifer Johrendt, *Mechanical, Automotive & Materials Engineering*

Prof. Bruce Minaker, *Mechanical, Automotive & Materials Engineering*

University of Windsor

Prof. Michael Thompson, *Chemical Engineering*

McMaster University

Prof. Kaan Inal, *Mechanical & Mechatronics Engineering*

University of Waterloo

Germany

Prof. Dr.-Ing. Thomas Böhlke, *Institut für Technische Mechanik (Engineering Mechanics)*

Prof. Dr.-Ing. Frank Henning, *Institut für Fahrzeugsystemtechnik (Vehicle System Technology),*

Fraunhofer Institut für Chemische Technologie (Chemical Technology)

Prof. Dr.-Ing. Jörg Hohe, *Institut für Angewandte Materialien – Computational Materials Science,*

Fraunhofer Institut für Werkstoffmechanik (Mechanics of Materials)

Dr.-Ing. Luise Kärger, *Institut für Fahrzeugsystemtechnik (Vehicle System Technology)*

Karlsruhe Institute of Technology

Participants

Speakers

Róbert **Bertóti**, *Karlsruhe Institute of Technology*

Matthew **Bondy**, *University of Windsor*

Viktoriia **Butenko**, *Karlsruhe Institute of Technology*

Benedikt **Fengler**, *Karlsruhe Institute of Technology*

Evan **Freeman-Gibb**, *University of Windsor*

Sebastian **Gajek**, *Karlsruhe Institute of Technology*

Johannes **Görthofer**, *Karlsruhe Institute of Technology*

Navraj **Heer**, *The University of Western Ontario*

Anton **Helfrich**, *Karlsruhe Institute of Technology*

Martin **Hohberg**, *Karlsruhe Institute of Technology*

Loredana **Kehrer**, *Karlsruhe Institute of Technology*

Daniel **Kupzik**, *Karlsruhe Institute of Technology*

Yuchao **Liu**, *The University of Western Ontario*

Tom **Ma**, *University of Windsor*

Gleb **Meirson**, *Fraunhofer Project Centre, The University of Western Ontario*

Nils **Meyer**, *Karlsruhe Institute of Technology*

Atieh **Mohtagi**, *The University of Western Ontario*

Rudolf **Neumann**, *Karlsruhe Institute of Technology*

Pascal **Pinter**, *Karlsruhe Institute of Technology*

Trevor **Sabiston**, *University of Waterloo*

Malte **Schemmann**, *Karlsruhe Institute of Technology*

Michael **Schober**, *Karlsruhe Institute of Technology*

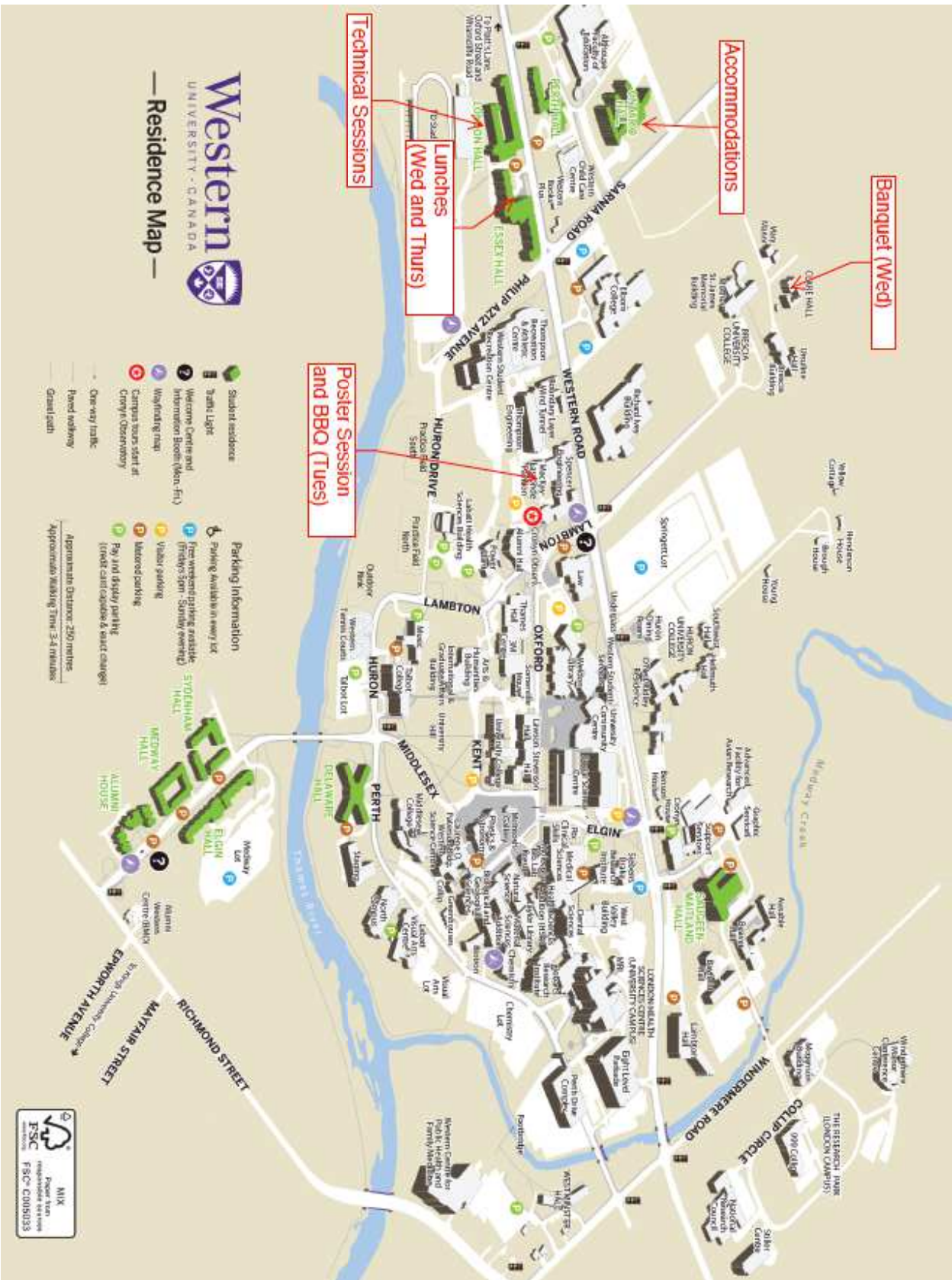
Felix **Schwab**, *Karlsruhe Institute of Technology*

Markus **Spadinger**, *Karlsruhe Institute of Technology*

Jonathan **Tham**, *University of Waterloo*

Anna **Trauth**, *Karlsruhe Institute of Technology*

Marielouise **Zaiß**, *Karlsruhe Institute of Technology*



Banquet (Wed)

Accommodations

Lunches (Wed and Thurs)

Technical Sessions

Poster Session and BBO (Tues)

Western
UNIVERSITY - CANADA

Residence Map

- Student residence
- 24hr Light
- Western Centre and Information Booth (Mon-Fri)
- Wayfinding map
- Campus tours start at City's Observatory
- One-way traffic
- Paved walkway
- Grass/land

Parking Information

- Parking Available in every lot
- Free winter parking available (Friday's 5pm - Sunday's 6am)
- Visitor parking
- Motorist parking
- Pkg. and display parking (credit card required & exact change)

Approximate Distance: 250 metres
Approximate Walking Time: 3.4 minutes

