Preliminary Program

(February 13, 2020)

Innovative Materials For Additive Manufacturing (IMAM)

March 8 – 12, 2020

Santa Ana Pueblo
New Mexico

Conference Co-Chairs
Daniel Schmidt
Luxembourg Institute of Science & Technology, Luxembourg

Brett G. Compton
University of Tennessee Knoxville, USA

Nikhil Gupta
New York University, USA

Chua Chee Kai
Nanyang Technological University, Singapore

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Sunday, March 8, 2020

17:30 – 18:40	Conference Check-in
18:40 – 19:00	Opening Remarks
19:00 – 20:00	Opening Reception (with heavy hors d'oeuvres)

Monday, March 9, 2020

07:30 – 09:00	Breakfast
	Session: AM with Thermosets Chairs: Brett G. Compton, University of Tennessee Knoxville, USA Gary Gladysz, Dixie Chemical Company
09:00 – 09:45	**Approaches to thermoset resins for direct-ink-write additive manufacturing** Leah Appelhans, Sandia National Laboratories, USA
09:45 – 10:15	**Cure behavior and thermo-mechanical properties of dual-cure thermoset resins containing functionalized fillers** Jessica Kopatz, Sandia National Laboratories, USA
10:15 – 10:45	**New developments in dual cure epoxies** Daniel F. Schmidt, Luxembourg Institute of Science & Technology, Luxembourg
10:45 – 11:15	Coffee Break
11:15 – 11:45	**Controlled conversion approaches to selective laser sintering (SLS) printing of high T_g thermosets** Christopher G. Campbell, Sandia National Laboratories, USA
	Session: Guiding AM with AI
11:45 – 12:15	**Mechanical metamaterials by DLP printing** Christopher Hansen, University of Massachusetts Lowell, USA
12:15 – 12:45	**Additive manufacturing in pharmaceutical formulation - Development of biodegradable printed dosage forms for oral drug delivery** Matej Novak, University of Chemistry and Technology Prague, Czech Republic
12:45 – 14:00	Lunch
14:00 – 18:30	Discussion, *ad hoc* sessions
18:30 – 20:00	Dinner
	Session: Upscaling Reactive AM Chairs: Daniel F. Schmidt, Luxembourg Institute of Science & Technology, Luxembourg
20:00 – 20:30	**Extrusion deposition additive manufacturing utilizing high glass transition temperature latent cured epoxy systems** Gary Gladysz, Dixie Chemical Company, USA
20:30 – 21:00	**Large-format 3D printing enabled by dual-curing urethane elastomers** Brian Howell, Lawrence Livermore National Laboratory, USA
21:00 – 21:30	**Large scale reactive additive manufacturing and what to expect when scaling up** Christopher J. Hershey, Oak Ridge National Laboratory, USA
21:30 – 22:00	Discussion

Tuesday, March 10, 2020

07:30 – 09:00	Breakfast
	Session: AM with Composites Chairs: Gary Gladysz, Dixie Chemical Company Daniel F. Schmidt, Luxembourg Institute of Science & Technology, Luxembourg
09:00 – 09:45	**Printing criteria for material extrusion of high temperature thermoplastic composites** Chad Duty, University of Tennessee Knoxville, USA
09:45 – 10:15	**Understanding print stability in material extrusion additive manufacturing of thermoset composites** Stian K. Romberg, University of Tennessee Knoxville, USA
10:15 – 10:45	Coffee Break
10:45 – 11:15	**Assessment of reactive thermoplastic composite pultrusion for continuous-fibre reinforced 3D printing** Régis Vaudémont, Luxembourg Institute of Science & Technology, Luxembourg
11:15 – 11:45	**Development of porous composite filament for additive manufacturing of lightweight components** Nikhil Gupta, New York University, USA
11:45 – 12:30	**Extrusion-based additive manufacturing of polymer-derived ceramic composites** Brett G. Compton, University of Tennessee Knoxville, USA
12:30	Boxed lunch
13:00 – 20:00	Excursion to Santa Fe with walking tour
	Dinner on your own

Wednesday, March 11, 2020

07:30 – 09:00	Breakfast
	Session: Field-Controlled Printing & Properties Chairs: Brett G. Compton, University of Tennessee Knoxville, USA Daniel F. Schmidt, Luxembourg Institute of Science & Technology, Luxembourg
09:00 – 09:45	**Field-assisted 3D printing of multi-functional materials** Matthew Begley, University of California Santa Barbara, USA
09:45 – 10:30	**Field-assisted printing for electronic devices** Tyler R. Ray, University of Hawaii at Manoa, USA
10:30 – 11:00	Coffee Break
11:00 – 11:30	**Silver–barium strontium titanate: insulator to conductor transitioning functional ink for additive manufacturing** Oshadha Ranasingha, University of Massachusetts Lowell, USA
11:30 – 12:15	**Beyond intuitive microstructures for 3D printed composites** Randall Erb, Northeastern University, USA
12:15 – 14:00	Lunch
14:00 – 17:45	Discussion, *ad hoc* sessions
	Session: Process Integration Chairs: Nikhil Gupta, New York University
17:45 – 18:15	**Functionalizing surfaces of 3D printed objects with an integrated low-cost atmospheric pressure micro plasma torch** Joris Kadok, Luxembourg Institute of Science & Technology, Luxembourg
18:15 – 19:00	**3D Printing of multi-functional structures** Eric MacDonald, Youngstown State University, USA
19:00 – 19:30	**Perspectives on the future of additive manufacturing** Daniel F. Schmidt, Luxembourg Institute of Science & Technology, Luxembourg
19:30 – 21:30	Conference Dinner

Thursday, March 12, 2020

07:30 – 09:00	Breakfast
	Session: AM with Metals Chairs: Nikhil Gupta, New York University
09:00 – 09:45	**Direct 3D-printing of smart materials based on electroactive polymer-metal composites** Keng Hsu, University of Louisville, USA
09:45 – 10:15	**Additive manufacturing of multi-metals and multi-materials by electrohydrodynamic redox printing – towards 3D gradient materials with submicrometer resolution** Alain Reiser, ETH Zürich, Switzerland
10:15 – 10:45	**Segregation phenomenon during co-deposition of ceramics and metal** Indumini Jayasekara, National Energy Technology Laboratory, USA
10:45 – 11:15	Coffee Break
11:15 – 11:45	**Additive manufacturing of stainless steel via fused deposition** Marius Wagner, ETH Zürich, Switzerland
11:45 – 12:15	**New lightweight alloys for additive manufacturing a powder producers approach** Bernhard Mais, Kymera International, Germany
12:15 – 12:45	**From powder to additively manufactured component – Advanced processes for novel alloys** Axel von Hehl, Leibniz Institute for Materials Engineering, Germany
12:45 – 14:30	Lunch / Conference Review / IMAM II Planning
	Departure