

# Symposium Agenda

## Day 1 – July 31

8:00 am	<b>Registration Opens</b>
8:30 am	<b>Introduction and Kickoff (W215C-D)</b> Kevin Walsh, Symposium General Chair Emmanuel Collins, JB Speed School of Engineering John Balk, UK College of Engineering Shamus McNamara, Symposium Technical Chair
9:00 am	<b>Keynote Speaker (W215C-D)</b> Philip Rack, University of Tennessee – Knoxville <i>“Nanoscale Focused Electron and Ion Beam Induced Processing: Extending 3D Printing to the Nanoscale”</i>
9:45 am (Concurrent Sessions A&B)	<b>Session 1A (W215A): Additive Manufacturing Part I</b> <b>9:45 AM</b> - <i>“Powder Packing and Thermal Conductivity in Selective Laser Melting”</i> by Shanshan Zhang <b>10:05 AM</b> - <i>“Mechanical Properties and Functionalities of 3D Printed Architected Metamaterials”</i> by Yanyu Chen <b>10:25 AM</b> - <i>“Mechanical Properties and Corrosion Resistance of Laser – Powder Bed Fusion Processed Duplex Stainless Steel”</i> by Arulselvan Arumugham Akilan
	<b>Session 1B (W215B): Technology Opportunities</b> <b>9:45 AM</b> - <i>“Kentucky Economic Development”</i> by Brian Mefford <b>10:05 AM</b> - <i>“Louisville Forward”</i> by Mary Ellen Wiederwohl <b>10:25 AM</b> - <i>“Engineering Capstone Projects for Industry”</i> by Erica Gabbard
10:45 am	<b>Break</b>
11:00 am (Concurrent Sessions A&B)	<b>Session 2A (W215A): Cool MEMS Devices &amp; Structures Part I</b> <b>11:00 AM</b> - <i>“Advanced Microelectronics Collaboration: Quilt Packaging® and Bio-MEMS Integration by Indiana Integrated Circuits at MNTC”</i> by Jason M. Kulick <b>11:20 AM</b> - <i>“Mass Production Rate Manufacturing of Polymer NanoFilms into Ultraflexible Suspended NEMS/MEMS Structures”</i> by Robert W. Cohn <b>11:40 AM</b> - <i>“Developing MEMS Bistable Actuators”</i> by Dilan Ratnayake
	<b>Session 2B (W215B): Manufacturing Core Facilities Part I</b> <b>11:00 AM</b> - <i>“GE First Build”</i> by Larry Portaro <b>11:20 AM</b> - <i>“The Micro/Nano Technology Center: A Research Core Facility Open for Access”</i> by Julia Aebersold <b>11:40 AM</b> - <i>“A Look into CeNSE at the University of Kentucky: Cutting Edge Nanoscale Research at the Heart of KY”</i> by Jillian Cramer
12:00 pm	<b>Lunch (W215C-D) Flash Poster Presentations</b>
1:30 pm	<b>Keynote Speaker (W215C-D)</b> Harold Sears, Ford Motor Company <i>“Additive Manufacturing @ Ford - Moving Beyond Prototypes”</i>

<p>2:15 pm (Concurrent Sessions A&amp;B)</p>	<p><b>Session 3A (W215A): Materials for Nanotechnology Part I</b>  <b>2:15 PM</b> - "A Computer Engineering Approach To Design For 3D-Printing Manufacturability" by Hank Dietz   <b>2:35 PM</b> - "Intercalation-Induced Phenomena in Layered and 2D Materials" by Jacek B. Jasinski   <b>2:55 PM</b> - "Solid-Liquid-Vapor Etching of Negative Nanowires and Vapor-Liquid-Solid Metal Oxide Composite Materials" by Alexandra J. Riddle</p>
	<p><b>Session 3B (W215B): Manufacturing Core Facilities Part II</b>  <b>2:15 PM</b> - "Rapid Prototyping Center and Additive Manufacturing Competency Center" by Tim Gornet   <b>2:35 PM</b> - "Electron Microscopy Center at the University of Kentucky" by Nicolas Briot   <b>2:55 PM</b> - Conn Center by Thad Druffel</p>
<p>3:15 pm</p>	<p><b>Panel Discussion: Open Innovation (W215B)</b>  Panelists:  Larry Portaro, GE FirstBuild  John Flynn, Fast Radius  Nicole Williams, HIVE  Adel Elmaghraby, University of Louisville</p>
<p>4:00 pm</p>	<p><b>Break</b></p>
<p>4:15 pm</p>	<p><b>Tours</b> (MNTC, GE FirstBuild, RPC, Conn Center)</p>
<p>5:30 pm – 7:30 pm</p>	<p><b>Evening Reception, Poster Session, and Networking (W215C-D)</b>  <b>6:30 PM</b> - Welcome Reception Remarks by Greg Fischer, Mayor of Louisville</p>

## Day 2 – August 1

<p>8:00 am</p>	<p><b>Registration Opens</b></p>
<p>8:30 am</p>	<p><b>Introduction (W215C-D)</b></p>
<p>8:45 am</p>	<p><b>Keynote Speaker (W215C-D)</b>  Edward Kinzel, University of Notre Dame  <i>"Additive Manufacturing of Glass and Scalable Sub-Micron Surface Patterning"</i></p>
<p>9:30 am (Concurrent Sessions A&amp;B)</p>	<p><b>Session 4A (W215A): Bioengineering and Life Sciences</b>  <b>9:30 AM</b> - "Synergistic Activity of Antiretrovirals co-administered with Q-GRFT Against HIV-1" by Farnaz Minooei   <b>9:50 AM</b> - "Effect of Acoustofluidic Flow on Intracellular Molecular Delivery" by Connor S. Centner   <b>10:10 AM</b> - "DNA-mediated Hierarchical 3D Superstructures of Anisotropic Gold Nanoprisms" by Emtias Chowdhury   <b>10:30 AM</b> - "Development and Optimization of Dual Conjugated Gold Nanoparticles for Glioblastoma Therapies" by Nicholas Allen</p>
	<p><b>Session 4B (W215B): Cool MEMS Devices and Structures Part II</b>  <b>9:30 AM</b> - "Commercialization Opportunities with the University of Louisville" by Kayla N. Meisner   <b>9:50 AM</b> - "Electronic Glaucoma Drainage Device" by Saliya Kirigeegagage   <b>10:10 AM</b> - "Glancing Angle Deposition for Nanoporous Membranes" by Chuang Qu</p>

	<b>10:30 AM</b> - <i>“Analysis of Carbonyls in Exhaled Breath of Smokers and Nonsmokers By A Microreactor Approach”</i> by Zhenzhen Xie
10:50 am	<b>Break</b>
11:00 am (Concurrent Sessions A&B)	<p><b>Session 5A (W215A): Additive Manufacturing Part II</b>  <b>11:00 AM</b> - <i>“Low Cost Additive Manufacturing Economic &amp; Environmental Comparison with Conventional Injection Molding”</i> by Eric Wooldridge  <b>11:20 AM</b> - <i>“A 3D Printed Microfluidic Mixing Chamber”</i> by Alexa M. Melvin  <b>11:40 AM</b> - <i>“Optimizing additive manufacturing of NiTi”</i> by Sayed Ehsan Saghaian</p> <p><b>Session 5B (W215B): Cool MEMS Devices &amp; Structures Part III</b>  <b>11:00 AM</b> - <i>“Old Technology New Application: Applying Thermal Inkjet Technology to Emerging Fields”</i> by Glenn Edelen  <b>11:20 AM</b> - <i>“ChevBot: An Innovative Laser Driven Locomotive Microrobot”</i> by Zhong Yang  <b>11:40 AM</b> - <i>“Design and Fabrication of Micro Structures toward Non-volatile Mechanical Memory Devices”</i> by Ji-Tzuoh Lin</p>
12:00 pm	<b>Lunch (W215C-D)</b> Poster Award Presentations
1:30 pm	<p><b>Keynote Speaker (W215C-D)</b>  Placid Ferreira, U. of Illinois Urbana-Champaign  <i>“Exploiting Micro &amp; Nanoscale Phenomena for Developing New Manufacturing Capability at Small Dimensional Scale”</i></p>
2:15 pm (Concurrent Sessions A&B)	<p><b>Session 6A (W215A): Additive Manufacturing Part III</b>  <b>2:15 PM</b> - <i>“A Little Variation Makes a Big Difference: Effect of Composition on Microstructures and Mechanical Properties of 3D Printed 17-4 PH Stainless Steel”</i> by Thomas Starr  <b>2:35 PM</b> - <i>“Tailoring the properties of NiTiHf through selective laser melting process parameters”</i> by Guher P. Toker  <b>2:55 PM</b> - <i>“Metal Fused Filament Fabrication (MF3) of Bronze”</i> by Mohammad Qasim Shaikh</p> <p><b>Session 6B (W215B): Materials for Nanotechnology Part II</b>  <b>2:15 PM</b> - <i>“Determining the Structure and Stability of Thermoelectric La<sub>3</sub>-xTe<sub>4</sub>-Ni Composites using High-Resolution and In-Situ TEM”</i> by M. P. Thomas  <b>2:35 PM</b> - <i>“In situ Transmission Electron Microscopy Studies of Metal to Insulator Transition in Tungsten Doped Vanadium Dioxide (V<sub>1-x</sub>W<sub>x</sub>O<sub>2</sub>, x= 0.0, 0.01)”</i> by Ahamed Ullah  <b>2:55 PM</b> - <i>“Adsorption and Opto-electronic Properties of Phosphorene”</i> by Manthila Rajapakse</p>
3:15 pm	<p><b>Panel Discussion: Investors Panel (W215B)</b>  Panelists:  Paul Ehlinger, Venture Finance at KSTC  Eric Dobson, Angel Capital Group  Cy Megnin, Elevate Ventures  Claudia Reuter, Techstars</p>
4:00 pm	<b>Closing Remarks (W215B)</b>