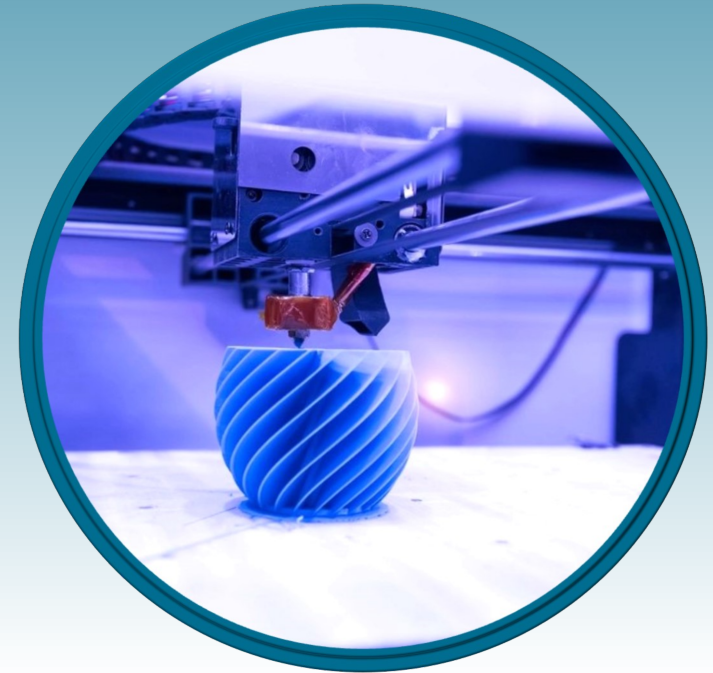


New Jersey Additive Manufacturing Symposium



June 14, 2019

Rutgers University - New Brunswick
Richard Weeks Hall of Engineering

CHAIRMAN'S MESSAGE

Welcome to the first New Jersey SAMPE Additive Manufacturing Center of Excellence Symposium! We are pleased to present a wonderful program with exhibitors and speakers from all over the Greater NJ Metropolitan area and beyond. Our friends at the Rutgers University School of Engineering have graciously hosted and we hope you avail yourself of a tour of the Richard Weeks Hall of Engineering's Additive Manufacturing Facilities.

In this, our first year, we are providing an overview of the Additive Manufacturing landscape in the region. This includes research activities here at Rutgers, Penn State, North Carolina A&T, and Drexel University as well as industrial formulators such as Evonik, Total Cray Valley, and Dixie Chemical. Additionally, we have representation from equipment manufacturers, service bureaus, and end-users such as Formlabs, Flacktek, Cimquest, and Gentex Corporation.

We encourage you to ask questions, speak up, and engage in discussions with speakers, exhibitors, and attendees alike. This symposium is not just about the state-of-the-art in the Additive Manufacturing industry, but also in which direction we, the people who are building and using this technology, want to push its development and maturity.

Thank you again for your support of NJ SAMPE and the Additive Manufacturing Center of Excellence. We hope you enjoy the day.

Very truly yours,



Russell Caspe
Benjamin Rasmussen Chair, NJ SAMPE



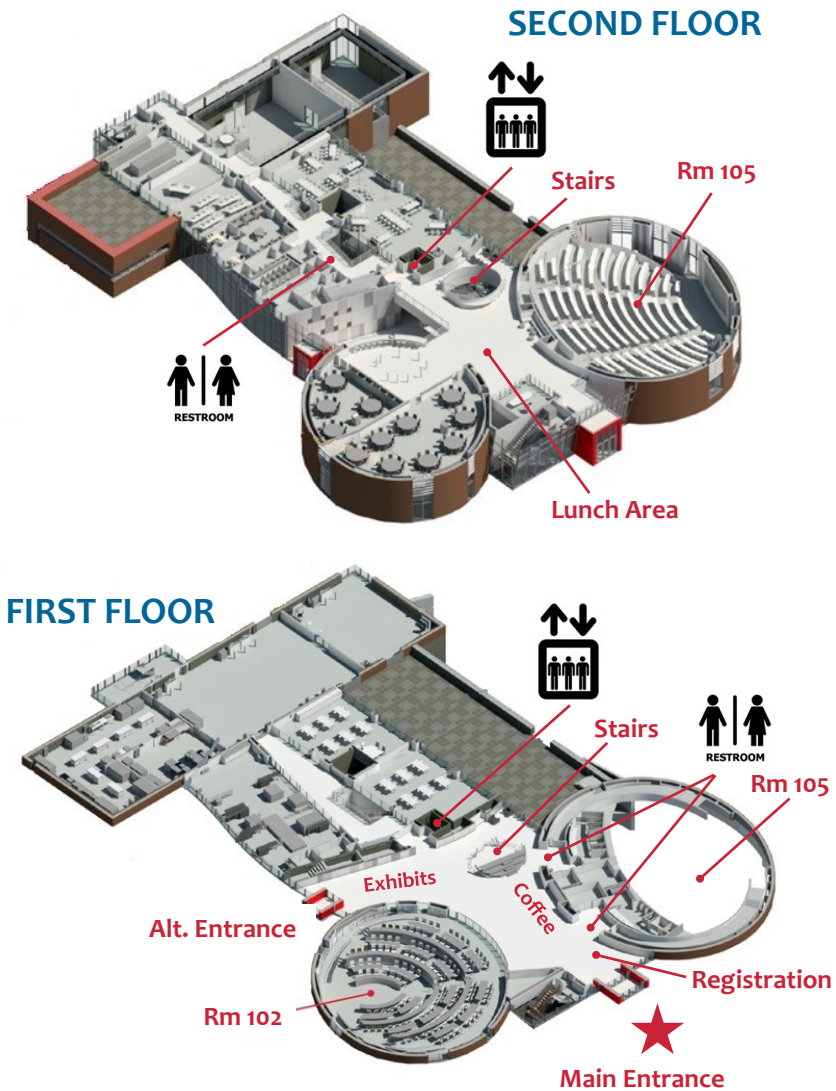
EVENT SCHEDULE

Registration in Atrium <i>Continental Breakfast & Networking Opportunity</i>	9:00 - 10:00 AM
Exhibits Open in Atrium	9:00 - 5:30 PM
Welcome & Introduction Room 105 Thomas Farris - Dean, Rutgers School of Engineering Howon Lee - Assistant Professor, Rutgers University	10:00 - 10:30 AM
Additive Manufacturing Panel Room 105	10:30 - 12:00 PM
Lunch on 2nd Floor Group photo on stairs before lunch	12:00 - 1:00 PM
Session I Academic Series in Room 105 Industrial Series in Room 102	1:00 - 3:00 PM
Break	3:00 - 3:30 PM
Session II Academic Series in Room 105 Industrial Series in Room 102	3:30 - 5:00 PM
Tours	To Be Announced

Several tours of the Weeks Hall of Engineering Additive Manufacturing Laboratories will be offered in the afternoon.

Please sign up for a time slot at the registration desk.

VENUE INFORMATION



Connect to **RUWireless**.

Guests are able to join the network by reviewing and agreeing to an acceptable use policy, with no account required.

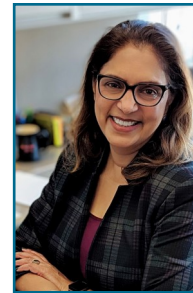
MEET OUR PANELISTS



Dr. Russell Caspe, Gentex Corp.

End User, Panel Moderator

Dr. Russell Caspe is the Advanced Engineering Manager at the Gentex Corporation in Carbondale, PA. He has 10 years of experience as a Materials Scientist in the aerospace and defense industry. In his role, Caspe is the Enterprise Subject Matter Expert on Additive Manufacturing. He also serves as the Benjamin Rasmussen Chair of NJ SAMPE.



Dr. Sangya Varma, Rutgers University

Academic Research

Dr. Sangya Varma is a scientist with industry experience. She is an inventor, an innovator, an educator, and a leader. Varma is the Chief Operating Officer of the New Jersey Center for Biomaterials, as well as the founding Director of Certificate in the Biofabrication and Biomanufacturing Workforce Development program at the School of Arts & Sciences, Rutgers University.



Thomas Farnan, Cimquest

End User

Thomas Farnan, Senior Account Executive & Desktop Metal Product Mgr., joined Cimquest in 2007. Since then, he has helped hundreds of local manufacturers successfully integrate 3D Printing/Additive Mfg. technologies into various design & manufacturing workflows. Farnan helps customers achieve continuous improvement objectives through the adoption of innovative technologies & processes. He also inspires the expanded use of Additive Mfg. and other key Advanced Mfg. technologies.



Dr. Nicolas Alvarez, Drexel University

Academic Research

Nicolas Alvarez is the Principal Investigator of the Alvarez Research Group at Drexel. The group strives to make connections between fundamental parameters measured in the lab and real-world processing conditions required in the manufacture of nanomaterials, composites, structured polymers, and "smart" materials. In collaboration with Dr. Palmese and PPG, the group is developing thermoset chemistries for reactive extrusion and stereolithographic additive techniques, specifically developing chemorheological relationships that inform printing parameters.

ACADEMIC SERIES

Room 105

Session I

1:00 - 3:00 PM

1 Electro spray Deposition Post-Processing of Optically Fabricated Hydrogels

Dylan Kovacevich – *Rutgers University*

2 Investigation of Process Variation Effects via a Homogeneous 3-Dimensional Tensile Test Coupon in PolyJet 3D Additive Printing

Ravi Pratap Singh Tomar – *NC A&T State University*

3 Pulsed Light Sintering for Advanced Manufacturing of Printed Electronics

Mukund Joshi – *Rutgers University*

4 Rapid 3D Printing of Multi-Material Structure with Projection Micro-Stereolithography Using Dynamic Fluidic Control

Daehoon Han – *Rutgers University*

Session II

3:30 - 5:00 PM

1 Closing the Skills Gap: Biofabrication Workforce Development, 3D Bioprinting, Cell Culture, Digital Dentistry, and More!

Sangya Varma – *Rutgers University*

2 4D Printing: Additive Manufacturing of Reconfigurable Soft Materials

Howon Lee – *Rutgers University*

3 Using a Polymer Weld Theory and Thermal History to Calculate Strength of Thermoplastic Polymer Material Extrusion AM Parts

Joseph Bartolai – *The Pennsylvania State University*

INDUSTRIAL SERIES

Room 102

Session I

1:00 - 3:00 PM

1 What's Next in 3D Printing: Formlabs Vision and Roadmap

Rosanne Kramer – *Formlabs*

2 Additive Manufacturing for Impact Attenuation Applications

John Weber – *Gentex Corporation*

3 Closed Loop Control for L-PBF AM using Layer Topographic Mapping (LTM)

David Maass – *Flightware*

4 Extrusion Deposition Additive Manufacturing Utilizing High Glass Transition Temperature Latent Cured Epoxy Systems

Vinay Mishra – *Dixie Chemical Company, Inc.*

Session II

3:30 - 5:00 PM

1 Specialty Precipitated Silicas for Improving Flowability of Industrial Powders

Jonathan Gorka – *Evonik Corporation*

2 Non-Halogenated Flame Retardant Nylons for Additive Manufacturing

Hao Wu – *KAI LLC.*

3 Functional Additives for 3DP

Megan Casey – *Total Cray Valley*

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FlackTek Inc. will be demonstrating an advanced tool for mixing, grinding/milling and dispersing. This Non-Invasive Mixing TM technology can be used to process any combination of powders, pastes, putties and liquids from 1g to 10kg. The SpeedMixer removes air bubbles while homogenizing the sample, in seconds, and there is ABSOLUTELY NO CLEANUP!

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New Jersey Center for Biomaterials is a multidisciplinary Center of Excellence at Rutgers, The State University of New Jersey, for Tissue Engineering, Regenerative Medicine, Drug Delivery, Medical Devices, 3D Bioprinting, and Workforce Development in Biofabrication and Biomanufacturing. NJCBM is dedicated to improving patient care and public health through the development and commercialization of future generations of biomaterials. The Center's scientific focus is on design, synthesis, characterization and fabrication of new materials for tissue engineering and drug delivery, and on understanding cell-material interactions to develop new medical implants and devices.



Founded in 1875, Shimadzu is a world-leading manufacturer of advanced analytical & test instrumentation including: Liquid & Gas Chromatography, Mass Spectrometry, Elemental Spectrometry, and Physical Testing devices.

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SunP Biotech is an advanced research and manufacturing company specializing in 3D bio-printing and tissue engineering. Based on proprietary technologies, they focus on developing innovative 3D bio-printing systems and their applications in the field of advanced drug discovery/testing, cancer research, and personalized tissue engineered products. Their current R&D products include 3D bio-materials printing systems, bioinks, and cell/tissue/organ-on-a-chip devices.



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