



Regional Additive Manufacturing Symposium

June 22, 2023

Rowan University – Glassboro, New Jersey

MESSAGE FROM THE CHAIR

Welcome to the 2023 Regional Additive Manufacturing Symposium!

Following three years of virtual programming, SAMPE New Jersey Chapter (NJ SAMPE) is pleased to provide this opportunity to bring together all of you - the researchers, educators, and end-users contributing to advances in the field of additive manufacturing in New Jersey and the surrounding region.

The Symposium Committee has assembled an impressive technical program of speakers from Rowan, Rutgers, New York University, and Drexel, as well as aircraft manufacturer Boeing and specialty materials company Aurorium. We also have a dozen poster presentations from these colleges, plus the University of Maryland!

NJ SAMPE is grateful for the support of our co-hosts, the Henry M. Rowan College of Engineering and Rowan University Advanced Materials & Manufacturing Institute (AMMI). Additionally, we have representation from two generous sponsors - Shimadzu and Kaneka Corporation. We encourage you to engage with each of these organizations and explore how their products and services can further your endeavors.

Our objective is to facilitate discussions around the future role of additive manufacturing in an effort to bridge the gap between research and wide-scale implementation. Consider this an open forum - ask questions, speak up, share challenges, and collaborate to find creative solutions to drive this technology to maturity.

Thank you for your support of NJ SAMPE and the SAMPE North America Additive Manufacturing Center of Excellence by attending this event. We hope you enjoy the day!

Sincerely,



Melissa Jaime

Benjamin M. Rasmussen Chair, NJ SAMPE



Connect to [RowanWiFi](#).

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

Scan QR code at right for instructions.



EVENT SCHEDULE

Registration in Rowan Hall Atrium <i>Continental Breakfast, Networking</i>	8:00 - 9:00 AM
Exhibits & Posters in Atrium	8:00 - 4:45 PM
Welcome & Introduction in Auditorium Melissa Jaime - Chair, NJ SAMPE Giuseppe Palmese - Dean, Henry M. Rowan College of Eng. Joe Stanzione, III - Founding Director, Rowan AMMI	9:00 - 9:15 AM
Plenary Session in Auditorium	9:15 - 11:45 AM
Lunch in Atrium <i>Group photo, AMMI Laboratory Tours*</i>	12:00 - 1:30 PM
Poster Session in Atrium	1:30 - 2:30 PM
Concurrent Presentations	2:45 - 4:45 PM
Session I	Engineering Hall - Room 319
Session II	Engineering Hall - Room 321
Student Poster Awards & Closing <i>Rowan Hall Auditorium</i>	4:45 - 5:00 PM

***Advanced Materials & Manufacturing Institute Tours**

An opportunity to visit AMMI's composites and additive manufacturing facilities in Rowan Hall, which are utilized for a variety of federally and industrially funded projects.

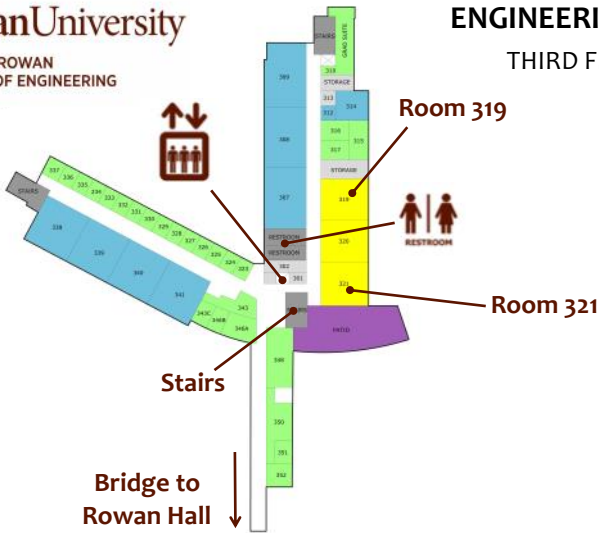
Please sign up for a time slot at the registration desk.

VENUE INFORMATION



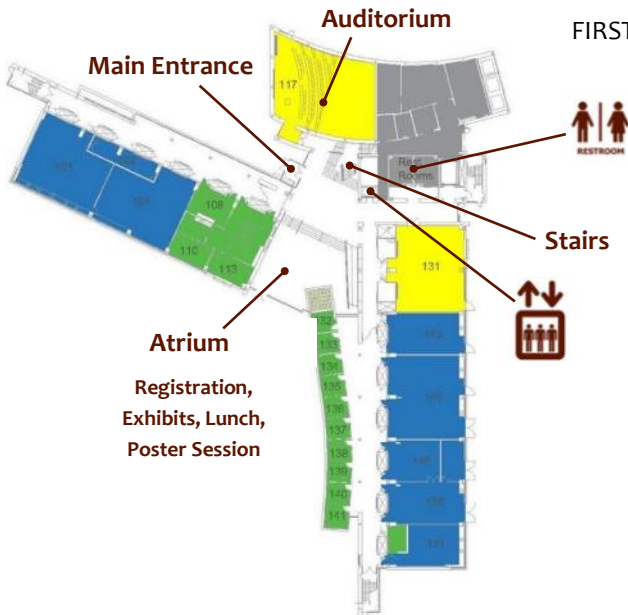
10

ENGINEERING HALL THIRD FLOOR



9

ROWAN HALL FIRST FLOOR



#

Corresponding building number on [Rowan Campus Map](#).
Parking is available in Lots D1, D2, or D. No permit required.

PLENARY SESSION SPEAKERS



Nicolas Alvarez, Ph.D.
Drexel University



Rajiv Malhotra, Ph.D.
Rutgers University



Antonio Paesano, Ph.D.
Boeing



Giuseppe Palmese, Ph.D.
Rowan University AMMI



Christopher Piccolo
Rowan University



Joe Stanzione, III, Ph.D.
Rowan University AMMI

PLENARY PRESENTATIONS

Rowan Hall Auditorium

9:15 - 11:45 AM

1 Additive Manufacturing of Reinforced High Performance Thermoset Polymers

Nicolas Alvarez, Ph.D. – *Drexel University*

2 Low-Cost Deployment of Additive Manufacturing in the Quantification of Biofilm Accumulation

Christopher Piccolo – *Rowan University*

3 Additive Manufacturing of Magnesium Parts for Rotorcrafts via Laser Powder Bed Fusion

Antonio Paesano, Ph.D. – *Boeing*

4 Multiplexed Fused Filament Fabrication Beyond Throughput-Resolution-Flexibility Tradeoffs

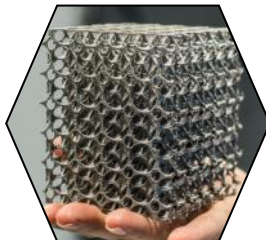
Rajiv Malhotra, Ph.D. – *Rutgers University*

5 DLP Printing of Materials with Spatially Resolved Properties from a Single Vat

Giuseppe Palmese, Ph.D. – *Rowan University AMMI*

6 Additive Manufacturing of Renewable Materials

Joe Stanzione, III, Ph.D. – *Rowan University AMMI*



CONCURRENT PRESENTATIONS

Engineering Hall

2:45 - 4:45 PM

Session I

Room 319

1 In-situ Monitoring for Assisted Defect Detection in Additive Manufacturing Using Optical Imaging and Infrared Thermography

Youssef AbouelNour – *New York University*

2 Controlled 2D and 3D Self-Assembly of Short Fibers for Additive Manufacturing

Thamires Andrade Lima, Ph.D. – *Drexel University*

3 Novel Technique for Swift and Controlled Fabrication of Composite Materials via Additive Manufacturing

Ahmed M. H. Ibrahim – *Drexel University*

4 3D-Printed Shadow Waveguide-Based Acoustofluidic Device for Microparticle Trapping and Manipulation

Chadi Ellouzi – *Rowan University*

Session II

Room 321

1 Determining the Processing Conditions of Direct Ink Writing Through Controlling Interfacial Adhesion

Heedong Yoon, Ph.D. – *Drexel University*

2 Betulin-Based Polyester Thermoplastics and Their Incorporation in UV-Curable Methacrylate Networks

Casey Cox – *Rowan University AMMI*

3 Substrate Compatibilization Strategies for Self-Limiting Electrospray Deposition

Noah McAllister – *Rutgers University*

4 Styrene Maleic Anhydride Enhanced ABS Compounds Tailored for Additive Manufacturing

Sudipto Das, Ph.D. – *Aurorium*

SPONSORS & EXHIBITORS

Rowan Hall Atrium

8:00 AM - 4:45 PM



SHIMADZU

Excellence in Science

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.

Shimadzu universal test machines, fatigue testers, X-ray Fluorescence Spectrometers, impact testers, Thermal Analysis, Particle Size Analysis, X-ray CT imaging, and ultra-high speed cameras are vital research tools for additive manufacturing research.

Visit www.ssi.shimadzu.com for details.

Kaneka

Kaneka North America LLC is a subsidiary of the Kaneka Corporation, headquartered in Osaka and Tokyo, Japan.

Kaneka Corporation has business activities that span a broad spectrum of markets ranging from plastics, resins, chemicals and foodstuffs to pharmaceuticals, medical devices, electric and electronic materials and synthetic fibers.

We supply intermediates for the manufacturing of products in a variety of industries, including the environmental and energy, automotive, construction, information and telecommunication sectors.

Kane Ace® MX is Kaneka's novel core-shell rubber (CSR) toughening system for thermoset resins. It is a predispersed CSR Masterbatch which enhances the physical properties of the resins through optimal dispersion of core-shell particles. The revolutionary liquid impact modifiers of Kane Ace® MX achieve highly improved strength, improved fracture toughness and endurance without losing the heat resistant characteristics (T_g) of thermoset resins.

POSTER SESSION

Rowan Hall Atrium

1:30 - 2:30 PM

A Hybrid Experimental-Numerical Framework to Improve the Repair Quality of Wind Turbine Blades by Cold Spray

Ibnaj Anamika Anni – *Rowan University*

Synthesis Optimization of a Glycidyl Amine-based Furan Epoxy Resin

Amy Bassett – *Rowan University*

Polymeric Gradient Refractive Index Lenses via Digital Light Processing Vat Photopolymerization Technology

Jamison Engelhardt & Jianwei Tu, Ph.D. – *Rowan University*

Targeted Nanomaterial Delivery via Self-limiting Electrospray Deposition for Device Fabrication

Michael Grzenda – *Rutgers University*

Betulin-based Polyester Thermoplastics Incorporated in Methacrylate Thermosets

Colby Higgins – *Rowan University*

Evaluation of Hybridized Bio-based Building Blocks as Coating Materials

Emre Kinaci, Ph.D. – *Rowan University*

Combining Mechanical Measurements and AI to Identify Constitutive Laws in Extreme Conditions

Behrad Koohbor, Ph.D. – *Rowan University*

Acetal Based Dimethacrylate Crosslinkers for Renewable and Recyclable Thermosets

Jaclyn McLaughlin – *Rowan University*

Electroplated Lattice Structures for Energy Absorption

Colleen Murray – *University of Maryland*

Mixed-Material Feedstocks for Cold Spray Additive Manufacturing of Metal-Polymer Composites

Matthew Schwenger – *Rowan University*

Woven Fiberglass Composite DLP 3D Printer

Elias Timmons & Krutik Shah – *Rowan University*

Next-Gen Foam Material: Unlocking Thermal Healing Potential in Polyurea Foam

Kazi Zahir Uddin – *Rowan University*

EVENT COMMITTEE

Joe Abrantes

Secretary and Educational Outreach Chair, *NJ SAMPE*

Megan Casey, Ph.D.

Treasurer, *NJ SAMPE*

Amir Islam, Ph.D.

Voting Director and Membership Chair, *NJ SAMPE*

Melissa Jaime

Benjamin M. Rasmussen Chapter Chair, *NJ SAMPE*

Howard Kliger, SAMPE Fellow

Programs Chair, *NJ SAMPE*

Rajiv Malhotra, Ph.D.

Associate Professor, *Rutgers University*

Giuseppe Palmese, Ph.D.

Dean and Professor, *Henry M. Rowan College of Engineering*

Associate Director, *Rowan University AMMI*

Jessica Rudolph

Administrative Assistant, *Henry M. Rowan College of Eng.*

Borys Schafran

Director and Webmaster, *NJ SAMPE*

Joe Stanzione, III, Ph.D.

Founding Director, *Rowan University AMMI*

Professor, *Henry M. Rowan College of Engineering*

ABOUT THE ORGANIZERS

New Jersey Chapter of SAMPE

The Society for the Advancement of Material and Process Engineering (SAMPE) is a global professional member society that provides growth and educational opportunities in new and advanced materials and processing technology.

As the only technical society encompassing all fields of endeavor in materials and processes, SAMPE provides a unique and valuable forum for scientists, engineers, and academicians.

Established in 1977, the New Jersey Chapter of SAMPE serves members in NJ, NY, PA, and CT. The chapter was designated as SAMPE North America's first Center of Excellence in Additive Manufacturing in 2018.

Rowan University's AMMI

The Advanced Materials & Manufacturing Institute (AMMI) focuses on advancing fundamental and applied science and engineering technology related to materials and manufacturing with the vision to responsibly utilize nature's chemistries to enhance material performance and improve global sustainability.

They partner with industry leaders, government agencies, non-profits, other universities, and community colleges to address challenges in education, food & water, energy, national security, and sustainability at both the national and local level.



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