



November 2022 Newsletter

In-Person Meeting

December 1st, 5:30 pm, Rowan University, Glassboro, NJ

Jaclyn McLaughlin, Rowan University

“Tailoring the Network Topology and Toughness of Vinyl Ester Thermosets for Applications in Vat Photopolymerization”

Advanced Materials & Manufacturing Institute (AMMI)

Sponsor of the Month

Kenrich Petrochemicals



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Our Speaker

Jaclyn McLaughlin received her Bachelor's and Master's degrees in Materials Science & Engineering from Drexel University, and is currently pursuing her PhD in Materials Science & Engineering at Rowan University. She was recognized by SAMPE for her work in fabricating high-performance thermosets via additive manufacturing. Under Dr. Giuseppe R. Palmese, her research extends from development of resin formulations for vat photopolymerization to synthesis of precursors for renewable thermosets.

Tailoring the Network Topology and Toughness of Vinyl Ester Thermosets for Applications in Vat Photopolymerization

Additive manufacturing (AM), or 3D printing, has advanced to become a competitive form of polymer manufacturing. Vat polymerization including digital light processing (DLP) is used to rapidly fabricate thermoset products from liquid photo-curable resins. While 3D printing technologies have certainly advanced, properties of available resin systems must be expanded for a broader range of applications. This presentation explores the modification of vinyl ester (VE) photo-resin formulations to enhance the fracture toughness of printable thermosets. Functionally graded materials with spatially resolved properties will also be discussed.

Meeting Details

Date: December 1st, 2022

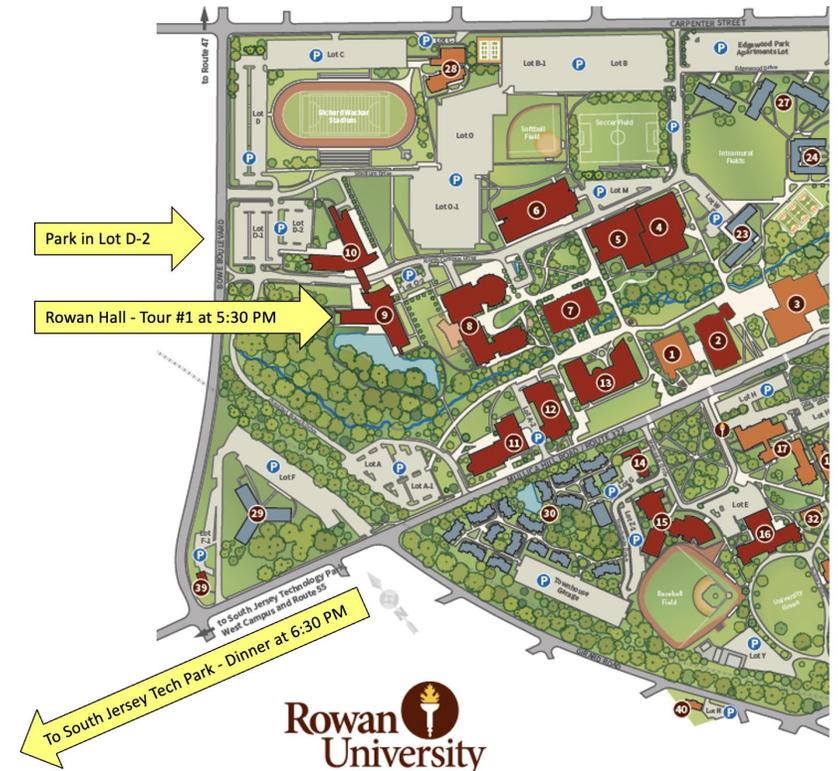
Location: Rowan University (Tour #1): 201 Mullica Hill Rd Glassboro, NJ 08028 - Park in Lot D2
South Jersey Tech Park (Dinner, Presentation, Tour #2): 107 Gilbreth Parkway Mullica Hill, NJ 08062

RSVP: E-mail Megan Casey at megan@njsampe.org;
RSVP by November 21, 2022

Agenda:

- 5:30 pm Tour 1 - Rowan Hall
- 6:15 pm Drive to South Jersey Technology Park
- 6:30 pm Dinner
- 7:15 pm Presentation
- 7:45 pm Tour 2 - AMMI
- 8:15 pm Adjourn

Fee: General admission: \$30
Corporate Sponsors: First attendee is free,
then \$30 for all others
Students: Always free
Prepay via PayPal to Megan Casey or cash/check at door



Monthly Meeting Preview

Mark your calendar! Looking forward to seeing you!

We are pleased to present our Fall 2022 Additive Manufacturing Series

September 8th – Yuebin Guo - Rutgers University

Rutgers University (with tour of Rutgers AM laboratory)

October 6th - Wangyang Ni – Stryker Corporation

Vintage Tavern, Gillette, NJ

November 3rd – Sneha Kelkar – Sartomer USA LLC

Vintage Tavern, Gillette, NJ

December 1st – Jaclyn McLaughlin – Rowan University

Rowan University, Glassboro, NJ

We are finalizing our Spring 2023 Presentation Schedule.

Contact Howard Kliger howard@njsampe.org for speaker or sponsorship opportunities. All are welcome!

Spring 2023 Preview

February 2nd - Technical Presentation

March 2nd - Professional Development

April 6th - Student Night

Rowan University Advanced Materials & Manufacturing Institute (AMMI)

AMMI focuses on advancing materials and manufacturing, with the vision to responsibly utilize nature's chemistries, to enhance performance and improve global sustainability. They partner with industry leaders, government agencies, non-profits, other universities, and community colleges. AMMI activities are mapped to four strategic technical initiatives – (1) Advanced Composites; (2) Optics/Photonics; (3) Batteries; and (4) Sustainability, all of which aim to address challenges in education, food & water, energy, national security, and sustainability at both the national and local level.

AMMI's main facilities are located at Rowan's South Jersey Technology Park in the Samuel H. Jones Innovation Center (SJIC). Approximately 4500 square feet of space at SJIC includes dedicated offices and state-of-the-art labs such as the Optics/Photonics Lab, Characterization Lab, Synthesis Lab, Composites Lab, a 3D Printing Lab shared with Rowan's Virtual Reality Center, and a shared Mechanical Testing Lab. AMMI also has collaborative facilities with the Physics & Astronomy department in Rowan's Science Hall, and with the Mechanical and Chemical Engineering departments in Rowan Hall.

Located in Rowan Hall and unique to AMMI is their Cold Spray Facility. Cold spray additive manufacturing (CSAM) is a rapid 3D printing technique which enables fabrication of freestanding parts, repair of parts, and construction of unique features on existing components in the field, at a depot, or in a factory. CSAM is a solid-state coating deposition process, whereby no melting of material occurs. During CSAM, particles impact a target region at high rates causing plastic deformation and bonding. This process enable rapid production of geometrically-complex, functionally-graded, multi-functional, durable components.

November 2022 News

NJ SAMPE at CAMX

Our Chapter was well-represented at October's CAMX in Anaheim, CA this past October. We look forward to meeting you at the next NJ SAMPE monthly meeting or SAMPE or CAMX event!



Thank You to Our Sponsors!

We are most pleased to acknowledge our New Jersey Chapter Corporate Sponsors. These fine companies help us to continue our activities and programs.



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Sponsor of the Month – Kenrich Petrochemicals



Kenrich Petrochemicals, Inc. provides products for the polymer and concrete industry sectors. They are a world leader in organometallic *Ken-React*[®] coupling agents with over 200 global patents covering titanate, zirconate and aluminate technology. The brighter flat screen on your laptop or the OLED on your PDA; the toner that prints your documents; the makeup or sunscreen you see on store shelves; the fracking that creates low cost alternate energy; all use *Ken-React*[®] coupling agent technology for more efficient use of raw materials. In addition to *Ken-React*[®] organometallics, Kenrich also produces *Ken-Stat*[®] MZ-100, a transparent, permanent, non-blooming and non-moisture- dependent antistatic agent based on bipolar layers of dissimilar trineoalkoxy zirconates. *Ken-Stat*[®] N100 is titanate based where transparency is not an issue. *Ken-Stat*[®] is also offered as a 60% active powder called *Ken-Stat*[®] KS MZ60S or *Ken-Stat*[®] KS N60S, and 60% active water emulsifiable grades called *Ken-Stat*[®] KS MZ60WE or *Ken-Stat*[®] KS N60WE.

Established in 1945, Kenrich Petrochemicals ships product from ISO 9001 facilities located in Decatur and Dayton, TN.

Salvatore J. Monte joined Kenrich Petrochemicals in 1966. The *Ken-React*[®] product line was invented in 1973 by Monte in an effort to come up with a better way to disperse Zinc Oxide in naphthenic oils. The products are now referenced throughout the literature and provide a non-hydrolysis interfacial coupling agent alternative to silanes in carbon-based materials such as graphite and graphene.

The newest nanotechnology developments are *Ken-React*[®] KPR[®] for in-situ catalysis in the polymer melt to compatibilize dissimilar condensation and addition polymers; and *Ken-React*[®] KCM[®] for surface modification of Portland cement to reduce the water to cement ratio by 31%, prevent efflorescence, and compatibilize polymers into water-based mortars and concrete.

For more information, contact:
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New Jersey Chapter

2022

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- Network with industry peers***
- Make a presentation***
- Become a Corporate Sponsor***
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