

We are pleased to present the following speaker for our February 6th Meeting (NOTE: At Evonik)

### Multi-Scale Carbon Nanotube Hybrid Composites: Novel Applications in Smart Garments and Structural Health Monitoring

**Erik T. Thostenson**  
Associate Professor

Departments of Mechanical Engineering,  
Materials Science  
and Center for Composite Materials  
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[www.mcetsensors.com](http://www.mcetsensors.com)

#### Abstract

This presentation highlights recent research in processing, characterization and modeling of electrically conductive carbon nanotube-based composite materials. Because carbon nanotubes have diameters three orders of magnitude smaller than traditional advanced fibers there is unique opportunity to create multi-scale hybrid composite systems where reinforcement scales are combined. Our recent research has developed a highly efficient and industrially scalable electrophoretic deposition technique for nanoscale hybridization. We have demonstrated that conducting carbon nanotube networks can be utilized as highly sensitive sensors. The potential applications of these novel sensors will be discussed and recent research on utilizing these sensors for structural health

monitoring of bridges and the development of smart garments for physical rehab will be highlighted.

#### Biography

Erik Thostenson is currently Associate Professor in the Mechanical Engineering Department at the University of Delaware. He also holds joint appointments in Materials Science and the Center for Composite Materials and is President and Co-Founder of MCET Technologies. Professor Thostenson's research focuses on processing and characterization of composite materials focusing on carbon nanotube and advanced fiber reinforcements toward the development of novel multifunctional composites.

Meeting Details – next page



## DIRECTIONS TO EVONIK (Note – February meeting only)

### Meeting Details

Evonik Corporation, 2 Turner Place, Piscataway, NJ  
08854

Via Route 287 South, take Exit 6 and stay to right of the split (yield sign) Merge onto S. Washington Ave and make a left on Turner Place (third light). Follow road to end and proceed into fenced property. Turn Left at entrance and follow road. Proceed to the end where you will see Evonik main entrance and parking lot.

**Via NJ Turnpike South or North**, take exit 10 and stay to left after toll. Follow signs for 287 North, right at second fork. Merge onto Route 287 North and take Exit 5. Stay to right of fork (yield sign) then merge onto Stelton Road. Follow Stelton Road to S.Washington and make a left at the light. (4 lights at intersection of Shell gas station and Advanced Auto

Parts) Immediately turn right at next light onto Turner Place behind Advanced Auto Parts. Follow road to end and proceed into fenced property. Follow road, to left, and proceed to the end where you will see Evonik main entrance and parking lot.

Via GS Parkway Take Exit 129 and follow signs for 440 South / 287 North. Merge onto Route 440 South which will become Route 287 North. Take Exit 5. Stay to right of fork (yield sign) then merge onto Stelton Road. Follow Stelton Road to S.Washington and make a left at the light. (4 lights at intersection of Shell Gas station and Advanced Auto parts) Immediately turn right at next light onto Turner Place behind Advanced Auto Parts. Follow road to end and proceed into fenced property. Follow road to left and proceed to the end where you will see Evonik main entrance and parking lot.

Everyone participating will have to sign in as visitors and review a site safety meeting. No Non Disclosure agreement is necessary.

### Other Details:

Time: 5:45 – 8:30 pm

Cost: \$30.00 at the door. Free for students. Cash, check and PayPal options are available. This meeting is open to all SAMPE members, spouses, guests and other interested parties. For reservations or questions, please contact Megan Casey at [mbc872@gmail.com](mailto:mbc872@gmail.com) by noon Wednesday before the meeting. Meal options are available.

### 2019 – 2020 Meeting Schedule

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**September 12, 2019** – Giuseppe Palmese,  
Drexel University

**September 23-26, 2019** – CAMX, Anaheim CA

**October 3, 2019** – Joe Abrantes, Evonik Corp.

**November 7, 2019** – Yuebin Guo, Rutgers

**December 5, 2019** – John Weber, Gentex

**February 6, 2020** – Erik Thostenson, University  
of Delaware

**March 5, 2020** – TBD

**April 2, 2020** – Students Night (at Rutgers)

**May 4-7, 2020**– SAMPE 2020, Seattle WA

**May 14, 2020** – TBD

**June 19, 2020** – 2<sup>nd</sup> Annual NJ Additive  
Manufacturing Symposium, at Rutgers Weeks  
Engineering Building

**September 17, 2020** – NJ SAMPE Annual Golf  
Outing, Picatinny Arsenal, NJ

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### SAMPE Chapter Service Excellence Award Winner:

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