

2017 COMPOSITES in WIND

April 18-19, 2017
NATIONAL WIND
TECHNOLOGY CENTER
Boulder, CO

Presented by Composites One in Partnership with IACMI

Bussing Schedule:

Parking is limited at The National Wind Technology Center.
Please plan to take the shuttle buses departing from the Omni Interlocken Hotel.

Tuesday, April 18:

Bus departs at 7:45 a.m. from the Omni Interlocken Hotel and will return following the workshop at 5:00 p.m.

Wednesday, April 19:

Bus departs at 7:15 a.m. from the Omni Interlocken Hotel. Following workshop, two buses will be chartering back to the Omni. One bus will depart at 12:00 p.m. and the second bus will depart at 1:00 p.m., allowing attendees to tour the NWTC.

Networking Reception:

Please join us for a networking reception and supper-by-the-bite at the Omni Interlocken on Tuesday, April 18, from 6:00 p.m. - 9:00 p.m.

Omni Interlocken Golf Resort

800 Eldorado Blvd
Broomfield, CO 80021
Ballroom C & D
(303) 464-9000

Composites in Wind is Sponsored By:



BUILDING TRUST



Composites in Wind is Presented By:



8:30 a.m. Introductions and Review of Agenda
Corbett Leach, Lead Technical Support Manager, Composites One

Welcome Remarks

Mark Kirk, Wind Energy Market Manager, Composites One
Derek Berry, IACMI Wind Technology Area Director and Senior Wind Technology Engineer, NREL
Bryan Dods, Chief Executive Officer, IACMI - The Composites Institute

9:00 a.m. Wind Energy: A Five-Year Outlook
Patrick Gilman, Program Manager for Analysis Work, DOE Wind
A discussion on economic and job outlook for the wind energy industry

9:30 a.m. Session 1: Inspection and Repair Clinic
Neil Smith, Technical Support Manager, Composites One
Join a large group of industry professionals as we look at the latest methods and techniques for the challenges of evaluating and remediation of defects and damage to wind turbine composite structures. There are some challenges in repairing composites in the field, especially at several hundred feet in the air, under harsh conditions. This session will feature a repair clinic, during which various repair companies will be doing live repairs on blade, spinners and nacelles.

Demo: LIVE Up-Tower Inspection and Repair

Jeremiah Skirvin, President, Notus Access Group
Keeping your blades healthy is vital to achieving maximum performance. With regular scheduled inspections and regular maintenance, Notus Access Group can optimize your blade efficiency. Notus Access Group performs inspections and maintenance on wind turbine blades and towers using rope access. NAG also provides aerial inspection with UAS.

10:00 a.m. Composites Repair Clinic
Each company participating in the clinic will give the group an overview of what they will see. Suppliers will be illustrating repair techniques and materials for optimization in-field wind nacelle, spinner, and blade repairs.

- Pro-Set Epoxy: Mike Barnard, Technical Advisor - CCT-VIP
- SikaAxson: Jason Cilio, Key Account Manager, Advanced Composites and Wind Energy
- Mankiewicz: Jeff Grandgenett, Sales Manager
- ITW WindGroup: Scott Hearon, Sales Manager, North America
- 3M: Nathaniel Schiesher, Sr. Technical Service Engineer- Energy Generation Lab, 3M
- Gurit: Matthew White, Field Service Engineer, Gurit (USA)

11:00 a.m. Demo: New This Year! 3M's Leading Edge Wind Protection Tape 2.0
3M: Nathaniel Schiesher, Sr. Technical Service Engineer- Energy Generation Lab, 3M

11:30 a.m. Drones! Drones! Drones!
Ben Williams, Co-Founder, HUVR
HUVR is a data analytics company that uses drones (UAS) to inspect industrial assets and large acreage for precision agriculture. Their goal is to provide actionable data for clients that will dramatically reduce their costs and manage their assets more effectively. Ben Williams will discuss programs for frequent monitoring and early detection before failure occurs.

12:00 p.m. Lunch

12:45 p.m. Session 2: Alt Wind
Carl Aune, Advanced Composites Sales Specialist, Composites One
This session is designed to feature new alternative materials and processes for distributed wind fabricators. These non-utility scale turbines are seen in a wide variety of designs. Each design is dependent on the ubiquity of composite materials. During this session we explore both rapid prototyping and tooling construction techniques. Other parts of this session will feature case histories of the large catalog of alternative wind installations, including vertical axis, wingless, architectural, cell tower, and many others. The materials to manufacture these unique designs require a variety of specialty composite materials. We will look at several of these during this session. Also during the ALT-Wind Session, the issue of Life Cycle for composites will be addressed. Several new materials as well as processes allow for larger and larger recycled content as well as novel new ways to recycle and even reuse composite materials.

Sustainable Manufacturing, Advanced Research and Technology (SMART) Wind Roadmap

Trudy Forsyth, Managing Director, Wind Advisors Team

The Wind Advisors Team, a virtual consulting company that specializes in distributed and small wind standards, technology, global markets, and policies. Trudy has worked in the wind technology field since 1994 and was the program leader of the National Renewable Energy Laboratory's (NREL's) distributed wind turbine program, including small and medium wind turbines. Since 1995 she coordinated efforts between the NREL/National Wind Technology Center technical staff and U.S. manufacturers for designing and testing new small wind turbines, accredited testing of commercial small wind turbines, and publishing turbine field performance and test reports. She developed near-term and mid-term industry strategies on behalf of the U.S. Department of Energy, the small wind industry, and a wide variety of stakeholders, including developing international and national turbine certification and labeling strategies.

1:15 p.m.

Tooling for Wind Composites

Rick Pauer, Applications Manager, Polynt Composites

1:45 p.m.

Plug Building, Mold Repairs, and Mold Inserts

Jason Cilio, Key Account Manager - Advanced Composites & Wind, SikaAxson U.S.

2:15 p.m.

Demo: Small Blade Infusion All-Carbon Fiber

Mike Ditzler, Vectorply, Vectorultra Carbon Fabric; Mike Barnard, Gougeon Bros., Proset Epoxy Infusion Resin; and Jan Falden, Fibertex, Compoflex

2:45 p.m.

Break

3:00 p.m.

Design and Manufacture of Fan Blades Using Unidirectional Thermoplastic Fibers

Jack Wilfley, President, Oribi Manufacturing, Advanced Materials Production

3:30 p.m.

Life-Cycle Issues: Cradle to Cradle

Carl Aune, Advanced Composites Sales Specialist, Composites One

Reactive Thermoplastic Resin - Elium

Dana Swan, Business Development Scientist, Arkema Inc.

Demo: Infusion of shear web from nine meter blade with Elium and Vectorply Fabric

4:00 p.m.

The Worlds First Recycleable Epoxy Resin System

Performance Without Permanence: Enabling Zero Landfill Manufacturing

Rey Banatao, CEO, Connora Tech

Demo: Parts dissolved and recovered

4:30 p.m.

High Performance Thermospastics: CFRTP (Continuous Fiber Reinforced Thermoplastic)

Doug Hammond, Senior Technical Manager - PolyOne Advanced Composites, PolyOne Specialty Engineered Materials

CFRTP material offers blade manufacturers the opportunity to reduce weight while maintaining exceptional strength, stiffness, and impact resistance

5:00 p.m.

Wrap Up and Q&A

6:00 p.m.

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Omni Interlocken Hotel
500 Interlocken Blvd
Broomfield, CO 80021



Be the Best! Enroll in a CCT Program!

The Certified Composites Technician (CCT) program is the industry's gold standard for composites training. It is designed to strengthen industry standards, elevate production performance, upgrade individual levels of knowledge and skill and offer public recognition to those who demonstrate a prescribed level of expertise in a specific composites specialization.

- 8:00 a.m. Session 3: Utility Wind Production**
Jim Noonan, Technical Support Manager, Composites One
- Light Weighting in Blade Design - Quality Fiber Layup**
Tom DeMint, Global Marketing Specialist - Wind Energy, Owens Corning
- 8:30 a.m. New Materials for Wind Towers Demo**
Eric Shelton, Sr. Account Manager, AkzoNobel - International Paint
Wind Power Specification Guide for Coatings
- High Compression Chemical Grout for Wind Turbine Towers Demo**
Bobby Combs, President, Cepoxy
- 9:00 a.m. Demo: Small Wind Blade Infusion (VIP Process)**
Angelo Silva, Huntsman, Araldite Epoxy; Dan Chamberlain, Gurit, Corecell; and Andrew Hedger, Magnum Venus Products, Innovator Equipment
Step-by-step demonstration as a small blade is prepared for infusion. Gurit will discuss lamination and infusion material used and the benefits of incorporating 'Kits' into your process. Magnum Venus Products will also demonstrate their new automated infusion injection system.
- Demo: Disposable Vacuum Bag Infusion**
Bill Karman, Airtech Products, VIP Supplies
- 9:30 a.m. Break**
- 9:45 a.m. Demo: Nacelle (LRTM Process)**
Doug Smith, RTM North, Tooling; Travis Irvin, Chomarat, Rovicore Fabric; Rick Pauer, Polynt, Resins; Bill Goodell, United Initiators, Peroxides
Light Resin Transfer Molding (LRTM), a versatile process that is perfect for a variety of parts. This session will showcase the advantages that LRTM has to offer those considering converting to closed mold. The discussion will center on a dynamic demonstration of advanced troubleshooting techniques using a glass table that will allow those in attendance to view the resin flow live.
- 10:15 a.m. Panel Discussion on Production Structural Bonding Adhesives**
Neil Smith, Technical Support Manager, Composites One
EBS, Axson, Proset, Gurit, and 3M will participate in a panel discussion on proper selection and usage of adhesives
- 10:45 a.m. Demo: New This Year! Mankiewicz Leading Edge Protective Coating**
Jeff Grandgenett, Sales Manager, Mankiewicz
- 11:15 a.m. Demo: Reusable Silicone Bag Infusion of Small Wind Blade**
Travis Irvin, Chomarat, Rovicore and Eric Heilshorn, 3A Lantor, Soric and Rick Pauer, Polynt, Resins

11:45 p.m. Wrap Up and Q&A

12:00 p.m. Lunch and Optional Tour of NREL



Hurry, Space is Limited - Register Today!

Register Online at:

www.coloradoworkshop.eventbrite.com

Questions?

Contact Rachel Menges at rachel.menges@compositesone.com
or call 847.871.1323.

Composites in Wind will be held at the National Wind Technology Center, April 18-19, 2017
Travel arrangements should be made to fly into Denver International Airport in Denver, CO.



National Wind Technology Center
18200 CO-128
Boulder, CO 80303

Hotel Accommodations

The National Wind Technology Center is located in close proximity to Broomfield, CO.
A recommended hotel for your stay is listed below.

Omni Interlocken Golf Resort

800 Eldorado Blvd
Broomfield, CO 80021
(303) 464-9000

REGISTRATION

To register for the course visit www.coloradoworkshop.eventbrite.com or complete the form below and email to samantha.rooney@nrel.gov. For additional information on registration, contact Samantha Rooney at 303.384.6924.

Name: _____

Title: _____

Company: _____

Address: _____

City: _____ State: _____ Zip: _____ Country: _____

Email Address: _____

Phone Number: _____

Are you a U.S. Citizen? Yes _____ No _____ Do you have food related allergies? Yes _____ No _____

Will you be traveling to this event? Yes _____ No _____

**** PLEASE BE AWARE ****

Valid documentation required for all attendees.

All attendees that are U.S. Citizens will need to bring a valid proof of identification.

Foreign National attendees must register by March 24, 2017 in order to allow sufficient time to complete the approval process needed to visit the facility. For more information on required documentation for foreign nationals please contact Samantha Rooney at samantha.rooney@nrel.gov or at 303.384.6924