

# IACMI @ Five Years October 7, 2020

Creating The Composites Community

# IACMI Provides Production-relevant Environments to Support Collaborative Innovation and Workforce Development



## IACMI Serves the Composites Supply Chain

**150+ members representing 31 states & 120+ Companies**

Modeling & simulation

**PURDUE UNIVERSITY** Indiana Manufacturing Institute

**VANDERBILT UNIVERSITY** Laboratory for Systems Integrity and Reliability at Vanderbilt University (LASIR)

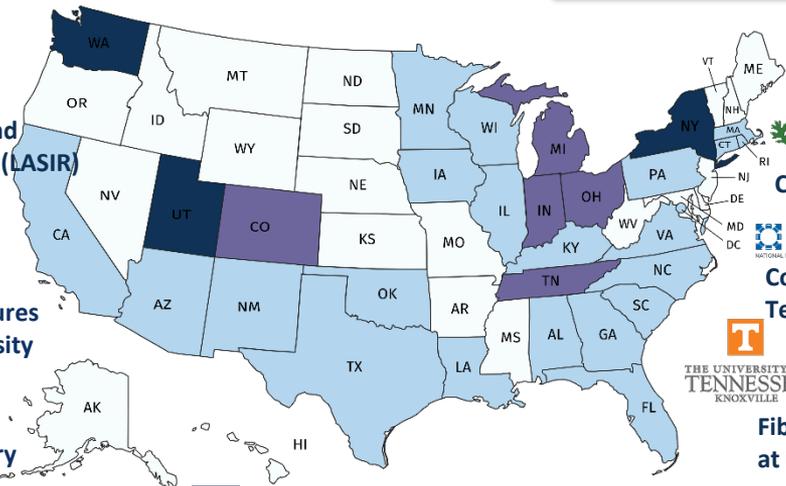
**COLORADO SCHOOL OF MINES**

**MICHIGAN STATE UNIVERSITY** Composite Materials and Structures Center at Michigan State University

Establishing business viability

**UK** Carbon Fiber Spinline Laboratory at the University of Kentucky

**UDRI** UNIVERSITY of DAYTON RESEARCH INSTITUTE Composites Laboratory at UDRI



- Regional partner
- State partner
- State with IACMI members

Prototyping & testing

**ACMA** American Composites Manufacturers Association

**American Chemistry Council**

**OAK RIDGE National Laboratory** Carbon Fiber Technology Facility at ORNL

**NREL** NATIONAL RENEWABLE ENERGY LABORATORY Composites Manufacturing and Education Technology Facility (CoMET) at NREL

**THE UNIVERSITY OF TENNESSEE KNOXVILLE** Fibers and Composites Manufacturing Facility at the University of Tennessee, Knoxville

**OAK RIDGE National Laboratory** Manufacturing Demonstration Facility

**MICHIGAN STATE UNIVERSITY** Scale-Up Research Facility (SURF)

Full-scale production implementation

Composites Recycling Technology Center

Utah Advanced Materials and Manufacturing Initiative

Composites Prototyping Center

# Connecting the Composites Industry

Professional Societies

**SOCIETY OF PLASTICS ENGINEERS**  
sampe  
North America

Trade Associations

American Chemistry Council  
ACMA  
AMERICAN COMPOSITES MANUFACTURERS ASSOCIATION

Federal and state partners

U.S. DEPARTMENT OF ENERGY  
Indiana  
A State that Works  
COLORADO  
Office of Economic Development  
PURE MICHIGAN  
Michigan Economic Development Corporation  
Economic & Community Development  
JobsOhio

International Consortia

CU  
COMPOSITES UNITED  
NATIONAL COMPOSITES CENTRE  
Innovate UK

Communications Partners

CW  
CompositesWorld  
JEC GROUP

Workforce Partners and Community Colleges

ABARIS  
ClosedMold Alliance  
DAVISTECH  
DAVIS TECHNICAL COLLEGE  
Composites One + MVP  
RTM North Technologies  
RCBI  
ROBERT C. BYRD INSTITUTE

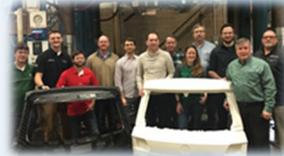
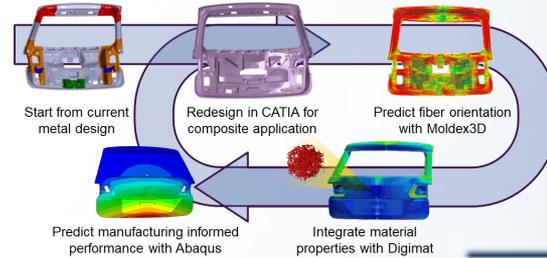
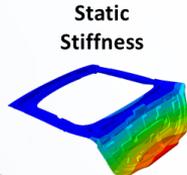
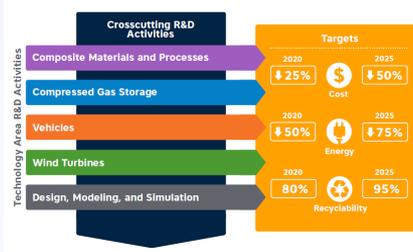
THE UNIVERSITY OF TENNESSEE KNOXVILLE  
OAK RIDGE National Laboratory  
VANDERBILT UNIVERSITY  
MICHIGAN STATE UNIVERSITY  
NREL  
NATIONAL RENEWABLE ENERGY LABORATORY  
C-PC  
Composite Prototyping Center  
University of Dayton Research Institute  
UAMMI  
UNIVERSITY OF ARIZONA  
UNIVERSITY OF MARYLAND



# Some Highlights

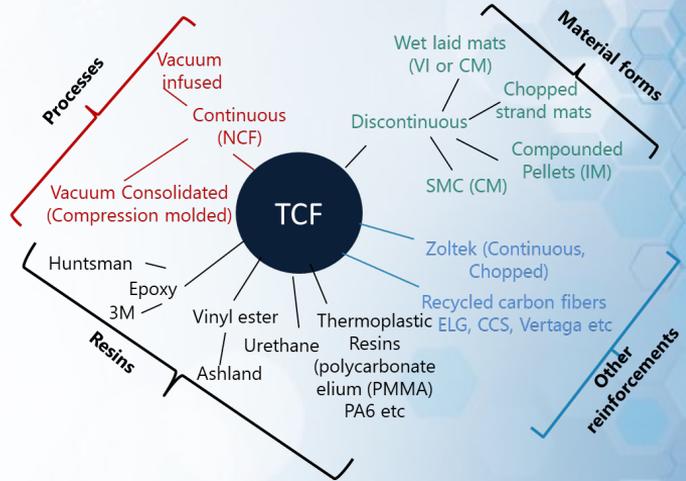


- Consortium
- DOE Goals
- Materials
- Processes
- Digital Tools
- Talent Development



# Impact

- ◆ Consortium
- ◆ DOE Goals
- ◆ Chemistry
- ◆ Processes
- ◆ Digital Tools
- ◆ Talent
- ◆ Development



# Building the Future



**Hayley Coughlin**

**Orbital Composites  
Marketing Specialist**

**2018 and 2019 IACMI  
Intern**



**Andrew Muno**

**Cabot Microelectronic:  
Research Associate**

**2017 IACMI Intern**



**Jordan Langness**

**Northrop Grumman  
Engineer**

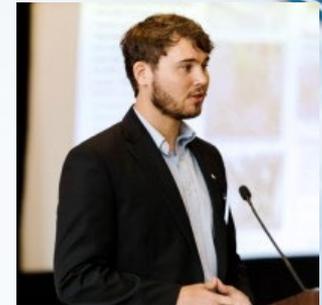
**2018 IACMI Intern**



**William Henken**

**Univ of TN, Knoxville  
2020 Volkswagen Fellow**

**2016, 2018, & 2019  
IACMI Intern**



**Casey Nichols**

**National Renewable Energy Lab  
Research Engineer**

**2018, & 2019  
IACMI Intern**

**Over 100 intern appointments and 100% placement rate  
within 6 months of graduation!**

# IACMI Vision

A National Institute for Accelerating Adoption of Advanced Composites



## INFRASTRUCTURE

- ◆ Generalization of medium to large structures
- ◆ Pathway to large-scale implementation



## TRANSPORTATION

- ◆ Extension into other modes and vehicle types
- ◆ Enabling the future of mobility via design and life cycle optimization

**Community  
Interests**

### IMPACT DELIVERED VIA

- Technoeconomic competitiveness
- Rapid qualification and cost-effective deployment

### IACMI PROVIDES

- Unique materials, scale of processes, and scope of capabilities
- Efficient multi-institutional collaboration model
- Supply chain centric approach for consortium collaboration

# Our Role in Growing the US Composites Industry



- ◆ **Convene membership** to identify key challenges, inform innovation, create supply-chain partnerships, set strategic direction for community
- ◆ **Aggregate support to invest in and maintain critical infrastructure and programs** to support innovation and workforce capacity across community
- ◆ **Focus leveraged resources** across community to create impactful projects and programs that support and grow composites industry

# Our Role in Growing the US Composites Industry



- ◆ **Convene** r  
innovation  
direction for community

**CONVENE**

Identify key challenges, inform  
in partnerships, set strategic

- ◆ **Aggregate**  
infrastructure  
workforce

**CONNECT**

n and ma  
to support  
community

- ◆ **Focus** leve  
impactful  
composite

**CATALYZE**

cross community to create  
ms that support and grow

**LEADERSHIP**



# Institute Direction – Resource Support



## Federal

Department of Energy  
AMO, VTO, WiTO, BTO, FEO

Department of Defense  
R&D, ManTech, SBIR

NSF, NIST, DOL, DOC, DOT

## Industry

**Membership &  
Engagement**

**Direct funding  
In-kind project support  
Co-location, Internships**

## State/Local

Innovation  
Entrepreneurship  
International

Education  
Workforce Development

# Institute Direction - Membership



## Fundamental Tenets



IACMI moves beyond DOE Cooperative Agreement



Create and share value via consortium engagement



Position Institute and consortium for co-investment



Drive ROI via direct and shared benefit



Recover costs for sustainably maintaining consortium

# Call to Action for the Community



Continue supporting IACMI through consortium engagement and project activities



Respond to requests and provide input on future direction



Advocate for IACMI to stakeholders and decision-makers

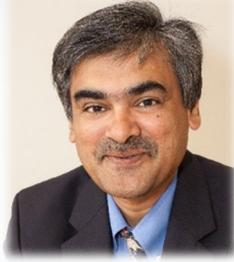


Engage in transition to new models for operation

# IACMI-The Composites Institute Technical Area Team



R. Byron Pipes  
Modeling &  
Simulation  
Technology Area  
Director



Uday Vaidya  
Chief Technology  
Officer



Derek Berry  
Wind Turbines  
Technology Area  
Director



Ray Boeman  
Vehicles Technology  
Area Director



Brian Rice  
Compressed Gas  
Storage  
Technology Area  
Director



Lawrence Drzal  
Vehicles Technology Area  
Director, Emeritus



Merline Theodore  
Vehicles Technology  
Area Director



Dale Brosius  
Chief  
Commercialization  
Officer



Cliff Eberle  
Materials and Processing  
Technology Area Director, Emeritus

# It's All About Having the Right People

Teamwork is the ability to work together toward a common vision. The ability to direct individual accomplishment toward organizational objectives. It is the fuel that allows common people to attain uncommon results. ~Andrew Carnegie

