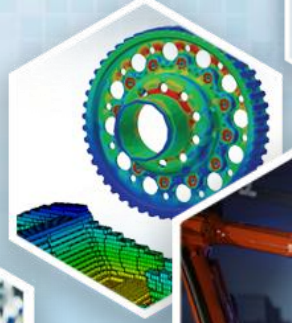
High Rate Aerostructures Fabrication

Meeting Summary

[Brian Rice]

August 14, 2024



THE COMPOSITES iacmi INSTITUTE

High Rate Aerostructures Fabrication Working Group Agenda

Co-Chairs: Brian Rice, Tim Gaur, Kevin Retz

Craig Neslen, Air Force, “Low-Cost Agile Manufactured Structures”

John Geriguis, Joby, “Joby – Emerging Needs for Composites Manufacturing”

Tim Gaur, Airbus, “Composite Enablers for Future Aircraft”

Eric Lange, UDRI, “Techno-Economic Model for High Rate Aerostructures Applied to Airborne Wind Energy Systems”

We are always looking for active WG members!
Contact: brian.rice@udri.udayton.edu

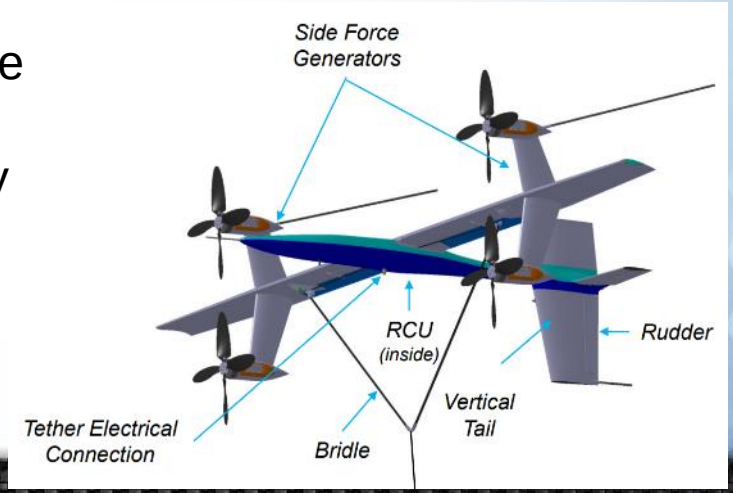
High Rate Aerostructures Application Areas

Build rates of 1000+/year
Leverage common materials
Leverage supply chain
Requires light-weight/low-cost

Collaborative Combat Aircraft

Advanced Air Mobility

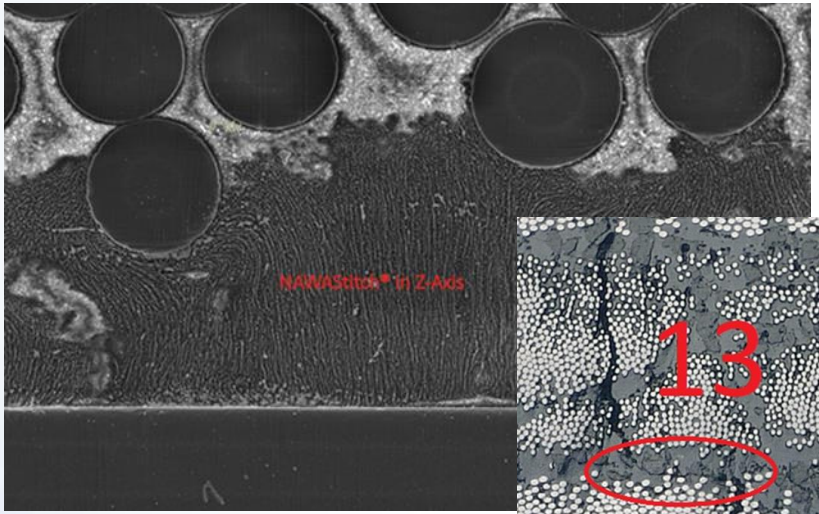
Airborne Wind Energy

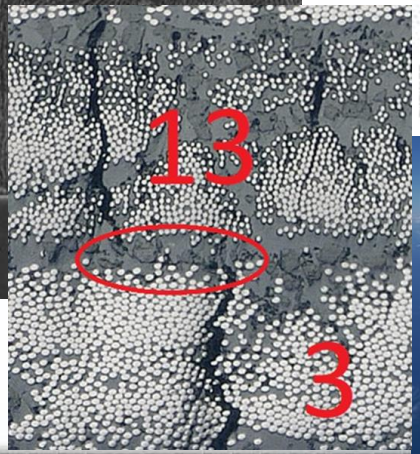


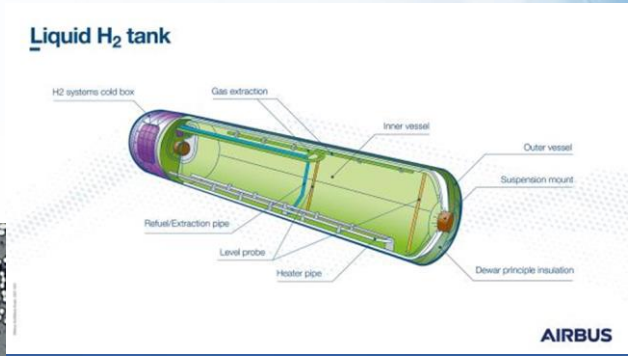
Development of Advanced Composites for Cryogenic Hydrogen Storage

Airbus' ambition is to bring to market the world's first hydrogen-powered commercial aircraft by 2035.

Project Partners:
UDRI
NAWAH America
Teijin
Forvia
Airbus



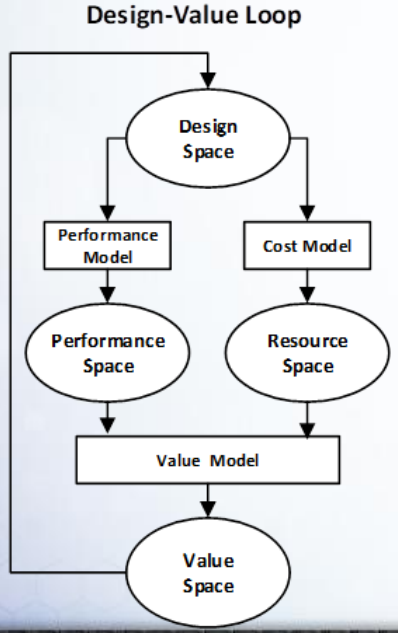


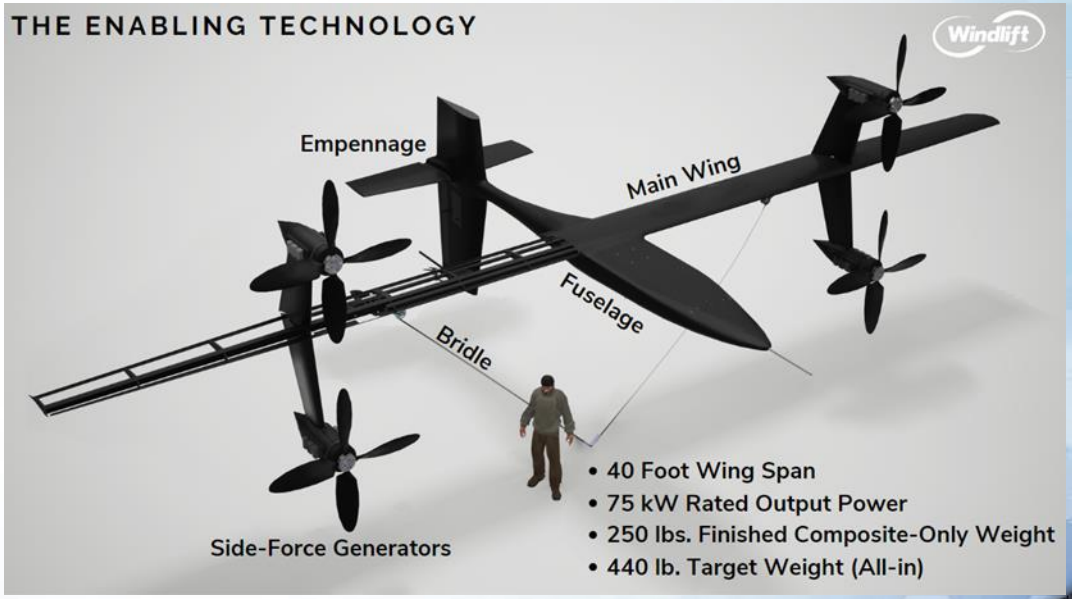


https://www.airbus.com/en/innovation/energy-transition/hydrogen/zeroe

Tradespace Analysis of Airborne Wind Energy Systems

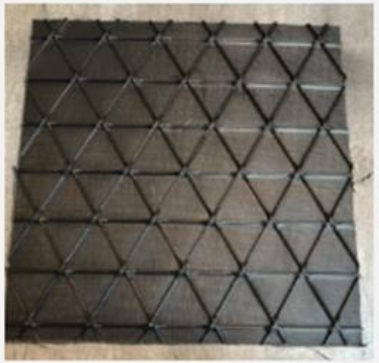
Project POC's: Eric Lang (UDRI), Andy Stough (Windlift)

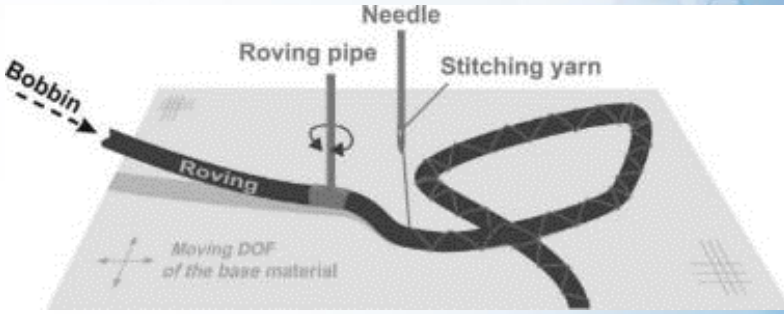


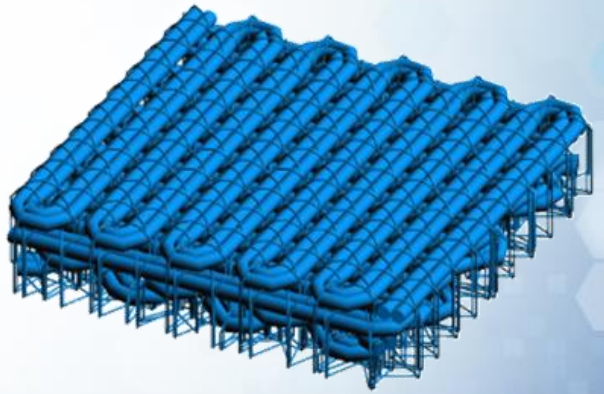


Capability: Advanced/Agile Manufacturing

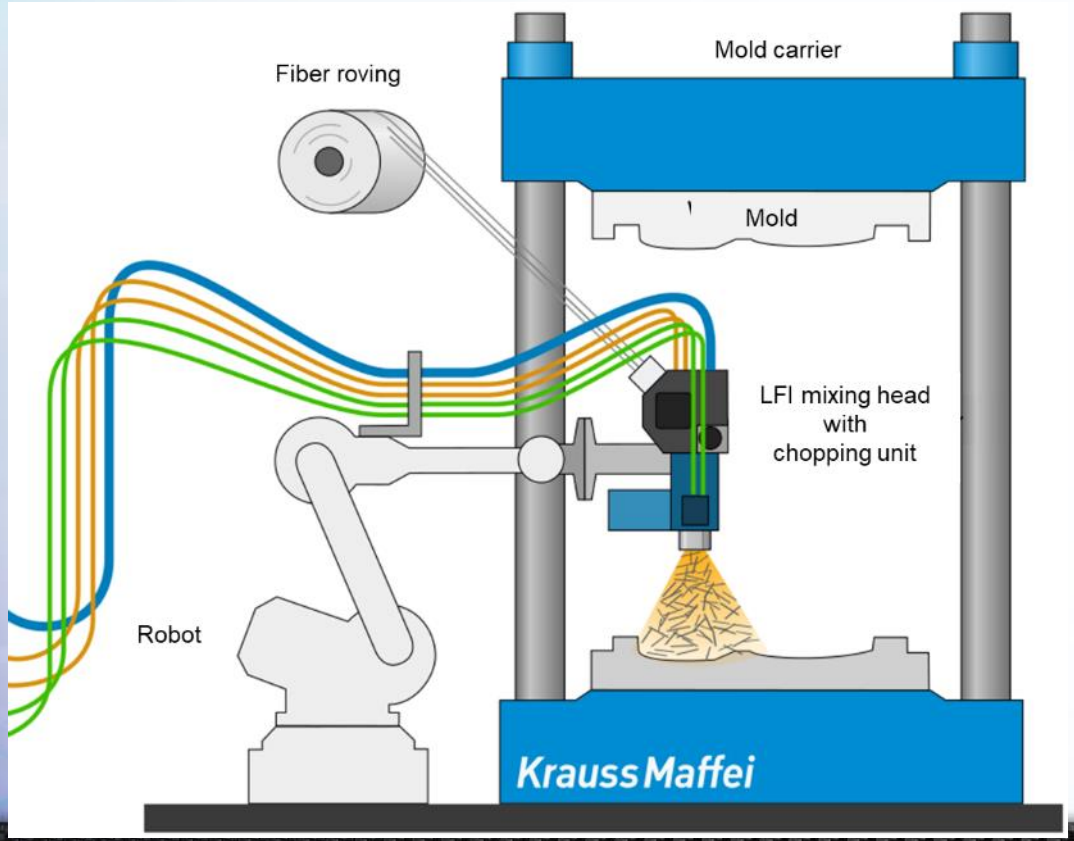
Tailored Fiber Placement



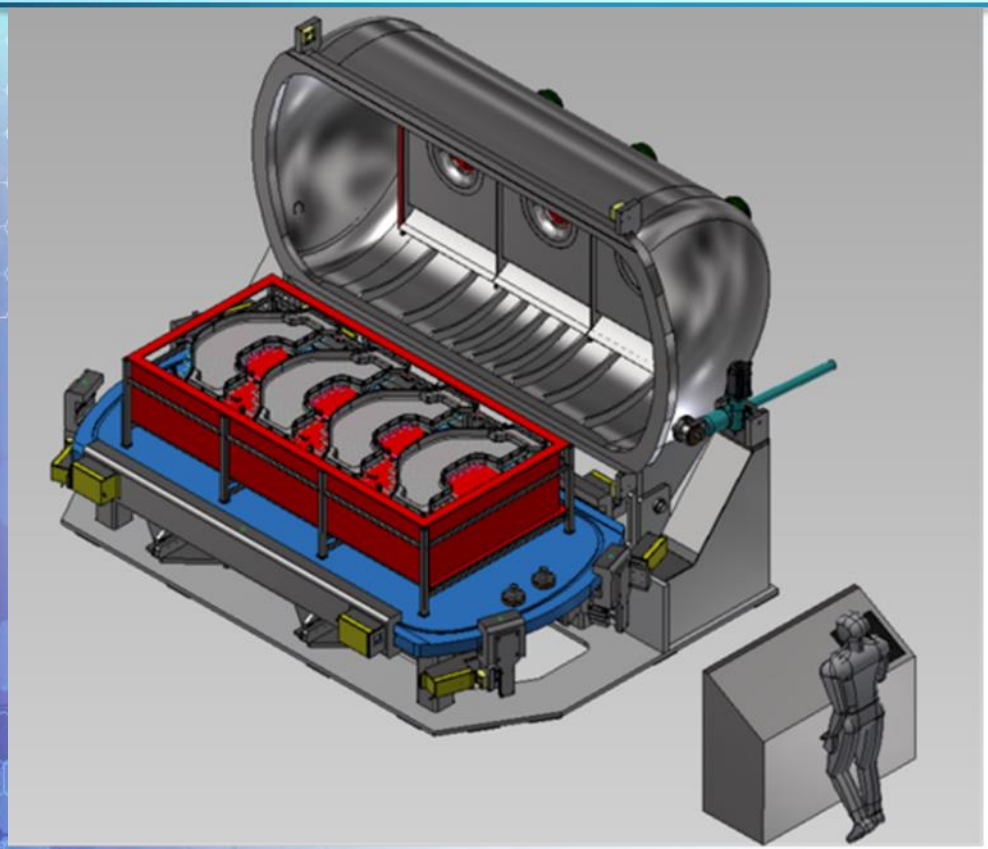




LFI Technology – Long Fiber Injection
Krauss Maffei technology



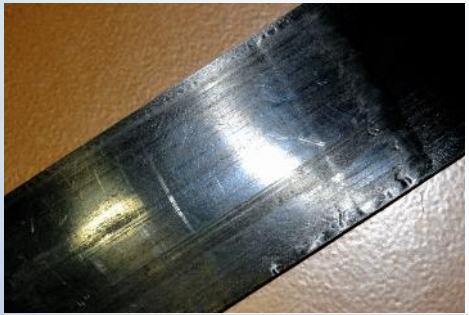
RapidClave® Processing



New RapidClave® with enhanced thermal control, energy saving features, and 5’ x 10’ size to be installed at UDRI winter 2024. Sponsored by Air Force under TARMACS program. Equipment available for industrial projects.

Adaptable Ambient Joining Systems for Tape, Braid & Preform TP's

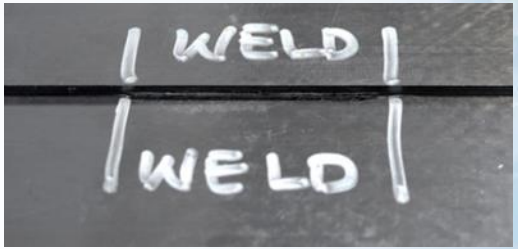
Ply By Ply Consolidation

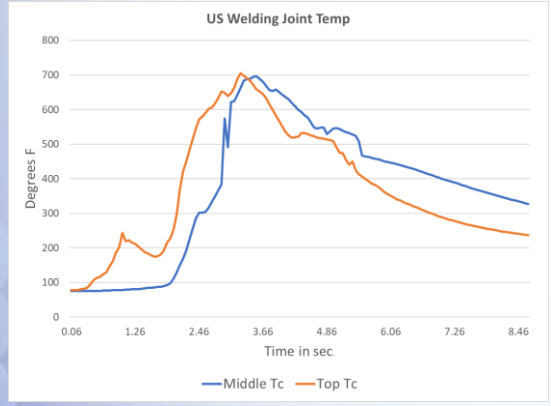


Braid Consolidation

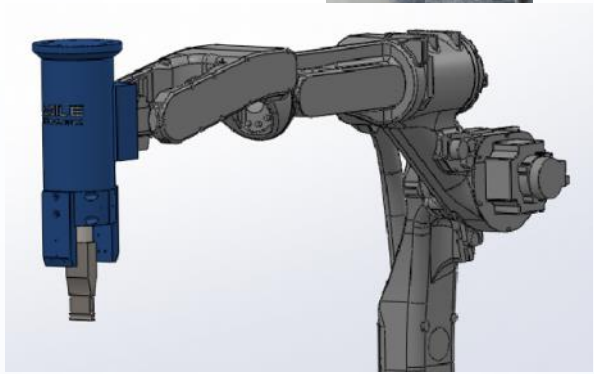
Butt Weld

Joining Preform Components





Through Thickness Temperature Control



Robotic Head

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