



***CARBON RIVERS***

# IACMI Summer Enterprise Panel



# Carbon Rivers' Origins Story

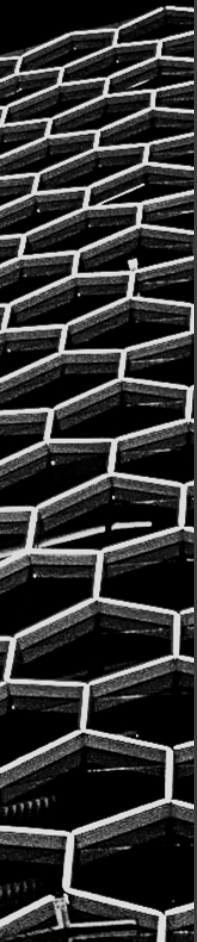
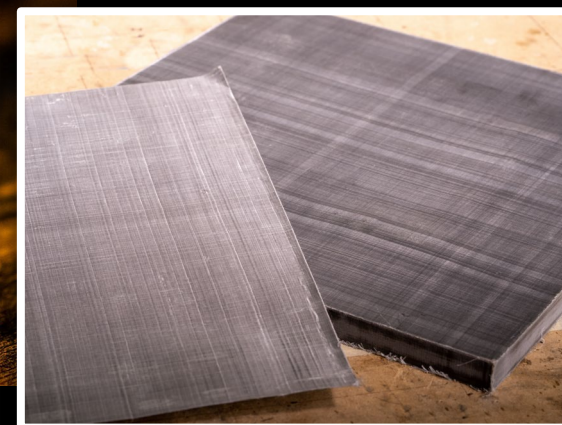
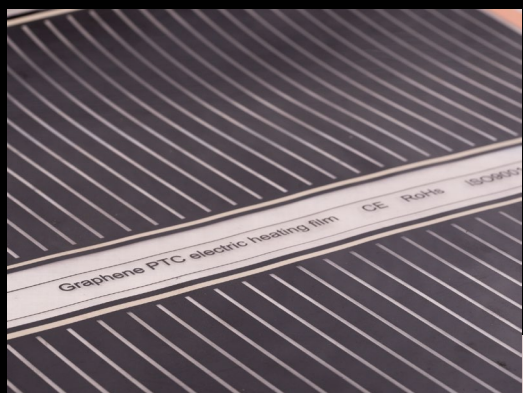
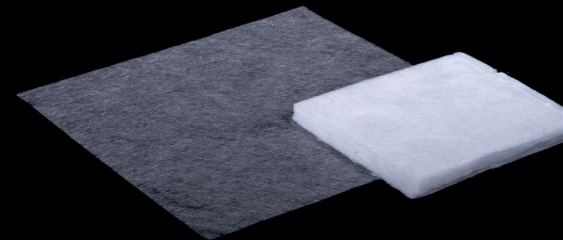
- Advanced materials and sustainable energy company for commercializing disruptive technologies
- Certified small business founded in 2017 in a basement and located in Knoxville, TN
- Engineers with background and work experience from ORNL and Y-12
- Experienced scientists & engineers from materials, composites, chemical, nuclear, electrical, and mechanical disciplines
- Focused on:
  - Graphene-Based materials (lubricants, elastomers, composites, coatings, metals, textiles, energy storage, and concrete)
  - Glass-to-Glass recovery technology
  - Ballistic armor systems
  - Custom Thermoplastic and Thermoset Composites
  - Additive Manufacturing
  - Nuclear advances





# Technology Portfolio

- Composites for Aviation
- rGF intermediates
- Advanced Structural Foams
- 3D Filaments
- Next-generation composites
- UHMWPE performance fabrics
- Energy Storage
- Neutron-absorbing Concrete





# Showcase Technologies

## Pristine Graphene Nanoflakes

- Two-dimensional hexagonal honeycomb lattice at 1-3 layers with no functional groups or defects
- Ease of deployment in coatings, concrete, fabrics, composites, metals, elastomers, lubricants, and other materials
- Low loading by wt% with decreased material costs and lower emissions for Carbon Credits and GHG
- Low cost, high quality, and high volume for global commercial applications
- Mechanical and performance enhancements for compression, tensile, flexural, UV, abrasion, corrosion, antimicrobial, fatigue, thermal dissipation, and conductivity



## rGF Composites

- Clean, mechanically-intact glass fiber for next-generation manufacturing
- Composite circular economy for thermoplastic pellets, non-wovens, and 3D filament
- PPAP validation for wind, automotive, marine, glass fiber, and building material industries
- Domestic, recovered glass fiber for US circular economy manufacturing that qualifies for LEED and IRA Credits





# IACMI Connections

CR would like to collaborate on a variety of advanced composite applications including:

- Additive Manufacturing on the field for wind, solar, and other energy sectors
- Graphene-based composites for increased fatigue, anti-corrosion, high temperature, anti-abrasion, and UV resistant materials for transportation
- Graphene-based building materials for enhanced infrastructure
- rGF intermediates for transportation and industrial circular economies
- Lightweighting aerospace for faster, less emission travel
- Increased fuel cell and energy storage capabilities





# **CARBON RIVERS** nano

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