

PUBLICLY-FUNDED GRANTS IN 2020

Feel free to contact the CoMFRE affiliate directly if you have any questions on the projects below.

First Quarter:

- “Autothermal Pyrolysis of Western Red Cedar for Dispatchable Renewable Power”, Robert C. Brown and **Mark Mba-Wright**; Funding Agency: Nebraska Public Power District; New Funding Amount: \$22,839.

Second Quarter:

- “Wind Turbines in Cold Climates: Icing Physics and Novel Strategies for Wind Turbine Icing Mitigation”; **Hui Hu**; Funding Source: Iowa Economic Development Authority; New Funding Amount: \$303,587.
- “A Fundamental Study Toward Innovative Plasma-Based Anti-/De-icing Strategies for Aircraft Icing Mitigation”; **Hui Hu**; Funding Source: NSF; New Funding Amount: \$320,000.
- “Three Dimensional Printed Scaffolds for Understanding Effect of Cavitation on Blood Brain Barrier”; **Nicole Hashemi**, Reza Montazami; Funding Source: DOD-Office of Naval Research (ONR); New Funding Amount: \$101,000.
- “Strategies for Building Soil Carbon and Generating Carbon Negative Energy in Iowa Counties”, **Mark Mba-Wright**, Zhiyou Wen; Funding Source: Iowa Economic Development Authority; New Funding Amount: \$280,000.

Third Quarter:

- “Benefit/Cost of Applying a Higher Asphalt Film Thickness (AFT) vs. Doing a Chip Seal at 1 Year”; Ashley Faye Buss, Shauna L. Hallmark, Charles Theodore Jahren, and **Junxing Zheng**; Funding Source: Minnesota Department of Transportation; New Funding Amount: \$145,001.
- “Three Dimensional Printed Scaffolds for Understanding Effect of Cavitation on Blood Brain Barrier”; **Nicole Hashemi** and Reza Montazami; funding Agency: DOD – Office of Naval Research; New Funding Amount: \$101,007.
- “A Fundamental Study toward Innovative Plasma-based Anti-/Deicing Strategies for Aircraft Icing Mitigation”; **Hui Hu** and Xianglan Bai; Funding Source: NSF; New Funding Amount: \$320,000.
- “Characterizing Physiochemical Evolution of Biomass Particles during Fast Pyrolysis Using High-resolution Simulation”; **Song-Charng Kong**; Funding Source: NSF; New Funding Amount: \$347,706.
- "Spray-wall Interactions and Material Characterization at Extreme Temperatures for UAS Applications"; **Song-Charng Kong** and **James Michael**; Funding Agency: DoD-CCDC Army Research Laboratory; New Funding Amount: \$519,769.
- “Advancing a New Biobased Value Chain in the Corn Belt to Improve Climate Resilience, Water Quality, and Rural Vitality”; Lisa Anne Schulte Moore, **Mark Mba-Wright**, and Emily Heaton; Funding Source: Walton Family Foundation; New Funding Amount: \$100,000.

- "Ultrafast Detection and Imaging of Underwater Blasts"; **James Michael**; Funding Agency: DoD-Naval Surface Warfare Center Indian Head; New Funding Amount: \$60,000.
- "Advanced High-speed Spectroscopy for Energetic Materials"; **James Michael, Travis Sippel, and Ted Heindel**; Funding Agency: DoD-Office of Naval Research (Defense University Research Instrumentation Program); New Funding Amount: \$268,562.
- "3D-Printed, Hierarchical Polymer-Bonded Energetic Composites with Electromagnetically Switchable Porosity"; **Travis Sippel**; Funding Agency: DoD-Defense Threat Reduction Agency; New Funding Amount: \$271,417
- "Collaborative Research: CDS&E: Advances in Closure Modeling for Turbulent Flows with Finite-sized Particles Informed by Massive Simulations on Heterogeneous Architectures"; **Shankar Subramaniam**, Funding Agency: NSF, New Funding Amount: \$262,072.

Fourth Quarter:

- "Predictor for Aircraft Structural Loads Due to Buffet"; **Ming-Chen Hsu**; Funding Agency: DoD (Phase II SBIR); New Funding Amount: \$354,760.
- "Testing of Durable Elastomeric and Metal Based Icephobic Coatings for Turbomachinery Ice Protections Applications"; **Hui Hu**; Funding Agency: DoD (Phase II SBIR); New Funding Amount: \$208,000.