

# VIRTUAL SYMPOSIUM

Presentation of UofM/UTIA Collaborated Projects  
Discussion of Spring Networking Event

## Design and Engineering of Cellulose-Metal Organic Frameworks (Cello-MOF) for Catalytic Conversions

Five sulfonated nano-cellulose metal-organic frameworks (MOFs) designed by UTIA to contain a variety of potentially catalytically active materials and three bridging ligands were tested to determine thermal stability using TGA. The MOF composites were also studied against a 35-compound panel of organic substrates and no significant reactions were observed under the conditions, potentially due to low temperatures used. Future work will be conducted either with cellulose-free MOFs or with in-vial reactions with selected substrates.



**Dr. Charles Garner**  
Dept. of Chemistry,  
University of Memphis



**Dr. Mi Li**  
Center for Renewable  
Carbon; Dept. of  
Forestry, Wildlife and  
Fisheries, UTIA

## Unraveling the Roles of Nitrous Oxide Reducing Microbial Communities and Associated Pathways in Mitigating Nitrous Oxide Emissions from Regenerative Agricultural Practices

A new partnership between UofM and UTIA was established to investigate if long-term regenerative agricultural practices impact nitrous oxide production rates, affects fungal and bacterial communities, and dictates phylogenetic diversity of specific N-cycling functional genes. Genomic DNA was successfully extracted from 320 soil samples and sequenced fungal and bacterial communities. Analyses are ongoing, and molecular lab work associated with the functional genes are being developed.



**Dr. Shawn Brown**  
Dept. of  
Biological Sciences,  
University of Memphis



**Dr. Debasish Saha**  
Dept. of Biosystems  
Engineering and Soil  
Science, UTIA

**Sept. 26 | Noon-1 PM (CST)**  
**Zoom: [bit.ly/UofM-UTIA\\_SymposiumFall23](https://bit.ly/UofM-UTIA_SymposiumFall23)**

