Sustainability & Environment

Current Projects:

Project Title: X-ray Imaging of Multiphase Flows of Interest to ONR
PI: T.J. Heindel
Funding Agency: Office of Naval Research (ONR)
Dollar Amount and Duration: $250,000; 04/2018 - 03/2023

Project Title: Environmental Field Evaluation of Potassium Acetate as an Alternative Deicer
PI/co-PIs: C.R. Rehmann, K. Ikuma, M.A. Perez
Funding Agency: Minnesota Dept. of Transportation
Dollar Amount and Duration: $212,877; 08/2019 - 06/2022

Project Title: RAPID: Autothermal Pyrolysis of Lignocellulosic Wastes to Sugars and Other Biobased Products
PI/co-PIs: R.C. Brown, M. Mba-Wright
Funding agency: American Institute of Chemical Engineers
Dollar Amount and Duration: $2,100,000; 01/2019 - 12/2021

Project Title: CNH2-L: Sustainable Field-To-Market Supply Chains Enabled by Blockchain Networks
PI/co-PIs: M. Mba-Wright, A.A. Campbell, N. Grudens-Schuck, Y. Guan, C. Lu, L.A. Schulte Moore, Y. Wang
Funding agency: NSF-National Science Foundation
Dollar Amount and Duration: $1,550,000; 01/2020 - 12/2021

Project Title: A Model-Based Assessment of Socioeconomic, Policy, and Environmental Implications for Sustainable Bioenergy
PI/co-PIs: Y. Wang, D.J Hayes, E. Heaton, M. Mba-Wright
Funding agency: USDA-National Institute of Food & Agriculture (NIFA)
Dollar Amount and Duration: $499,622; 02/2017 - 02/2021

Project Title: Controlled Polymerization of Lignin for Ideal Precursor of High-Quality Carbon Fiber
PI/co-PIs: X. Bai, R.C. Brown, E.W. Cochran, M. Mba-Wright
Funding agency: USDA-National Institute of Food & Agriculture (NIFA)
Dollar Amount and Duration: $500,000; 01/2018 - 12/2020

Project Title: Development of Energy and Water Master Plan for Iowa Army National Guard
PI/co-PI: S.-C. Kong, A. Kimber
Funding Agency: DOD Iowa Army National Guard
Dollar Amount and Duration: $100,000; 08/2018 - 08/2020

Project Title: Evaluation of Saturated Buffers as a Conservation Drainage Practice for Treating Agricultural Subsurface Drainage
PI/co-PIs: C.R. Rehmann, M.A. Perez, C.J. Rutherford, T.M. Isenhart, and D. Jaynes
Funding Agency: Iowa Nutrient Research Center
Dollar Amount and Duration: $97,911; 07/2018 - 06/2020

Project Title: On-command Pyrotechnic Light Emission through Controlled Electromagnetic Irradiation
PI/co-PIs: T.R. Sippel, S. Subramaniam, J.B. Michael
Funding Agency: SERDP / Naval Surface Warfare Center Crane
Dollar Amount and Duration: $149,925; 06/2019 - 05/2020
Project Title: An Open-source Framework for the Computational Analysis and Design of Autothermal Chemical Processes  
PI/co-PIs: A. Passalacqua, S. Subramaniam, R. Brown, M. Mba-Wright  
Funding Agency: US DOE - AMO  
Dollar Amount and Duration: $1,072,830; 06/2018 - 05/2020

Project Title: Autothermal Pyrolysis of Western Red Cedar for Dispatchable Renewable Power  
PI/co-PIs: R.C. Brown, M. Mba-Wright  
Funding agency: Nebraska Public Power District  
Dollar Amount and Duration: $22,839; 01/2020 - 02/2020

Completed 2019:

Project Title: Valorization of Biochar: Applications In Anaerobic Digestion, Livestock Odor Control and Plant Growth  
PI/co-PIs: R.C. Brown, D.S. Andersen, J.A. Koziel, M. Mba-Wright, Z. Wen  
Funding agency: USDA-National Institute of Food & Agriculture (NIFA)  
Dollar Amount and Duration: $1,469,448; 01/2018 - 12/2019

Project Title: An Exploratory Investigation of Using X-rays to Characterize Hydrate Formation  
PI/co-PIs: T.J. Heindel  
Funding Agency: Industry  
Dollar Amount and Duration: $142,961; 12/2017 - 10/2019

Project Title: High-Speed Stereographic Imaging System for Multiphase Flows  
PI/co-PIs: T.J. Heindel, J.B. Michael, T.R. Sippel  
Funding Agency: Office of Naval Research (ONR) DURIP award  
Dollar Amount and Duration: $253,417; 06/2018 - 05/2019

Completed 2018:

Project Title: Rapid: Autothermal Pyrolysis of Lignocellulosic Wastes to Sugars and Other Biobased Products (Budget Period 2)  
PI/co-PIs: R.C. Brown, M. Mba-Wright, Z. Wen  
Funding agency: American Institute of Chemical Engineers  
Dollar Amount and Duration: $700,000; 01/2018 - 12/2018

Project Title: Anaerobic Digester Life Cycle Cost Analysis  
PI: M. Mba-Wright  
Funding agency: Iowa Economic Development Authority  
Dollar Amount and Duration: $16,200; 11/2017 - 05/2018

Completed 2016:

Project Title: Developing Green, Highly Flowable, Rapid Set, High Performance Concrete for Pavement Patch Repair  
Investigators: K. Wang and G. Lomboy  
Sponsor: US DOT  
Dollar Amount and Duration: $150,000; 8/2014 - 5/2016