**Project Manager Qualifications**

The research team will include Professor Bo Hu and his postdoc researcher Dr. Lingkan Ding from the Department of Bioproducts and Biosystems Engineering, and Dr. Sara Heger, the extension specialist at Water Resource Center, University of Minnesota.

**Dr. Bo Hu** is a junior Associate Professor at Department of Bioproducts and Biosystems Engineering, University of Minnesota. With more than 18 years of active research experience specifically in bioprocessing development, nutrient removal, and waste management, he is leading projects to remove phosphorus from manure and from wastewater in the septic tank systems, projects to reveal the myth of recent swine manure foaming in Midwestern states, projects on synthetic ecology in lichen biofilm formation by co-culturing mixotrophic microalgae and filamentous fungi. He has finished projects to develop a community microbial electrochemical septic system and a fungal biofilm system for water treatment. Dr. Hu’s team at UMN has set up several standard procedures such as 16s rDNA based microbial analysis by using high-throughout pyrosequencing methods to study the microbial species in the waste treatment processes, ITS sequences to identify fungal species. His team is also developing several conversion platforms, such as lichen biofilm co-cultivation of fungi and microalgae, pelletized fungal fermentation, and solid and hemi-SolidSF of filamentous fungi, to produce bioprducts and biofuel from agricultural waste and residue, and to remove nutrients and pollutant from contaminated water. As the PI of the project, Dr. Hu will design and coordinate the research; Dr. Lin will assist in design and experimentation, data collection and dissertation.

Dr. Hu’s laboratory has all the necessary equipment and facilities for this project, including: Bio-Rod MJ Mini 48-Well Personal Thermal Cycler, Bio-Rod electrophoresis, New Brunswick refrigerated incubation shaker INNOVA 42R, New Brunswick shaker Excella E-24, Beckman Allegra X-15R Refrigerated Centrifuge, VWR refrigerated water heater circulator, Bioreactor/fermentor, Agilent 7820 A GC-FID-TCD [gas-chromatography analysis–flame-ionization detector–thermal conductivity detector] , Agilent Micro-GC, Agilent 1260 HPLC (Diode Array detector, Refractive Index Detector and autosampler), and Dionex ICS 2100/ ICS 1100 bundle ThermoFisher Scientific. Other basic equipment within the lab includes Biosafety cabinet, Autoclave, -20 freezer and 4 degree refrigerator, balances, pH meter, etc.. The lab is also equipped with two incubation rooms with full range of temperature control, a walk-in refrigeration room and a walk-in cold room.

Dr. Sara Heger is an engineer, researcher and instructor in the Onsite Sewage Treatment Program  in the Water Resources Center at the University of Minnesota. Since 1999, she has been providing education and technical assistance to homeowners, small communities, onsite professionals and local units of government regarding onsite wastewater treatment.  Sara coordinates the research program at the UMN and is currently, serving as the principle investigator on grants to create online owner’s guides and evaluate rest stops served by septic systems.  Heger is on the faculty of the Water Resources Science program, teaching Sustainable Waste Management Engineering. She presents at many local and national training events regarding the design, installation and management of septic systems and related research. Sara is Education Chair of the Minnesota Onsite Wastewater Association (MOWA) and the National Onsite Wastewater Recycling Association (NOWRA).  Sara serves on the NSF International Committee on Wastewater Treatment Systems.  She is also the chair of the Minnesota State Advisory Committee on Decentralized Systems.  She has BS in Biosystems & Agricultural Engineering and a PhD in Water Resource Science.

**Organization Description**

As the core department of UMN to tackle Agricultural engineering and environmental engineering issues, Bioproducts and Biosystems Engineering Department has very dynamic research activities and numerous excellent scientific researchers have received grant supports from LCCMR program. UMN Sponsored Projects Administration (SPA) will be the entity authorized by the Board of Regents to manage the project agreements with LCCMR program.