An NSF research grant project, ***LEAPS-MPS: Metal-Free Carbons as Efficient Antibacterial Materials*** is being conducted by Wanlu Li, an Assistant Professor in the Chemistry Department.

Bacterial contamination in wastewater systems presents a significant threat to public health. Effective water treatment is crucial due to society's rapid industrialization and urbanization, and drinkable water should be fecal and total coliforms free. This project aims to investigate the antibacterial activity of porous carbon materials that are doped with sulfur or/and nitrogen-containing species. It will open a new perspective on these metal-free materials in antibacterial studies. By linking the properties of the carbon to their performance in bacterial inhibition, the most effective features of the carbons will be identified. Why these species are effective will be explored too.

This project will lay a solid foundation for the long-term material development of potent metal-free antibacterial materials. Metal-free materials offer the advantage of reduced cost for the water treatment process. Besides, they can be potentially applied to the existing filtration systems if they possess effective antibacterial effects. The project will provide an early-career faculty to develop a research lab and launch research programs. It will also help the undergraduate students achieve their educational and career goals, especially those from underrepresented minority groups.