

# ***AGRONOMY SEMINAR SERIES*** ***FALL 2024***

*Enacting partner specificity in legume nodule symbiosis*

**Monday, December 2nd**

**2:30 p.m. LILY 2-425**

Attend virtually via Zoom

Seminar links will be posted at: [purdue.ag/agryseminars](http://purdue.ag/agryseminars)

## ***DR. HONGYAN ZHU***

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Legumes, such as peas, beans, and alfalfa, have a remarkable ability to establish a root nodule symbiosis with nitrogen-fixing soil bacteria to fulfill their nitrogen needs. This partnership is characterized by a high degree of specificity, occurring both within and between host and bacterial species. As a result, nodulation capacity and nitrogen fixing efficiency varies enormously among different plant-bacteria pairs. Genetic and molecular mechanisms that regulate symbiotic specificity are diverse, involving a wide range of host and bacterial genes/signals with various modes of action. Understanding the genetic basis of symbiotic specificity would enable the development of strategies to overcome the host range barrier, which is also a critical step toward extending root nodule symbiosis to non-leguminous plants. In this presentation, I will report our recent discoveries that shed light on the fascinating evolution of recognition specificity within the context of symbiotic signaling and plant immunity.



Dr. Hongyan Zhu was born and raised in a small village in China. He holds a B.S. in Agronomy from Yangzhou University, China, and an M.S. in Genetics from Kansas State

University. Dr. Zhu earned his Ph.D. in Genetics from Texas A&M University in 2001, followed by postdoctoral research at the University of California, Davis. In 2004, he established his research group at the University of Kentucky (UK) in the Department of Plant and Soil Sciences. At UK, his group combines genetic, genomic, and molecular tools to study symbiotic and pathogenic plant-microbe interactions. His current research focuses on elucidating the genetic mechanisms that control symbiosis specificity in legume-rhizobia interactions.