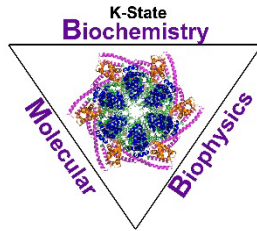


Ackert Hall, Room 120  
Wednesday, February 28, 2024  
4:00 P.M.



Coffee and Cookies  
Chalmers Hall, Room 168  
3:45 P.M.

**Biochemistry**  
&  
**Molecular**  
**Biophysics**

**Seminar**

## **Lipid Signaling and Engineering to Improve Plant Resilience to Challenging Environment**

**Xuemin “Sam” Wang**

E. Desmond Lee Endowed Professor in Plant Sciences  
University of Missouri - St. Louis

Principal Investigator, Donald Danforth Plant Science Center

Environmental stress adversely impacts plant growth and crop production. How are stress cues transduced into metabolic and growth alterations? Our studies show that membrane lipids are rich sources for generating messengers that connect stress perception to metabolic and physiological responses. Integrating various research strategies, such as lipid-protein interactomes, multiplex genome editing, and in vivo lipid imaging, we have identified lipid-signaling cascades involved in plant responses to changing environments, including water availability, high salinity, N/P deficiency, and circadian oscillation. Phosphatidic acid has emerged as a class of key cellular mediators modulating plant metabolism, growth, and stress responses. Targeted manipulations of the lipid-signaling processes have potential to improve vegetable oil production and crop resilience to stress conditions.