

**Theory for Microbiome Research Workshop**  
**Monday, November 16, 2020**  
**9 AM – 4 PM PST**

9:00-9:05: **JBIMS Introduction** (Britt Koskella)

9:05-9:30 **Keynote I: *How to apply theory to the microbiome*** (Britt Koskella)

9:35-10:25 **Talks session I**

- 9:35-9:45 *Spatial, temporal and phylogenetic scales in microbial ecology* (Josh Ladau)
- 9:45-9:55 *Dynamic Maximum Entropy Theory of Ecology* (Micah Brush)
- 9:55-10:05 *The Seed Microbiome* (Mason Kamalani Chock)
- 10:05-10:15 *Self-organization and criticality in species-rich metacommunities* (Jonas Denk)
- 10:15-10:25 Session I Q&A

10:25-10:40 **Coffee break**

10:40-11:40 **Breakout session I**

- 10:40-11:00 Icebreaker
- 11:00-11:30 Group discussion: *What are properties of useful theories?*
- 11:30-11:40 Report out

11:40-12:15 **Lunch break**

12:15-12:45 **Keynote II: *Ohm's law for biogeochemistry modeling*** (Jinyun Tang)

12:45-13:35 **Talks session II**

- 12:45-12:55 *Genome-informed reactive transport modeling* (Eric King)
- 12:55-13:05 *Drought-induced rhizosphere dynamics* (Ling Xu)
- 13:05-13:15 *Evolutionarily driven domain swap alters sigma factor dependence in bacterial signaling system* (Megan E Garber)
- 13:15-13:25 *How to teach a computer to learn about microbes with KG-COVID-19* (Marcin Joachimiak)
- 13:25-13:35 Session II Q&A

13:35-13:45 **Coffee break**

13:45-14:45 **Breakout session II**

- 13:45-14:25 Group discussion: *What are the steps to formulating and testing a theory?*
- 14:25-14:45 Report out

14:45-15:00 **Coffee break and self-reflection prompt:** How do you see your work contributing to the broader conceptual/theoretical framework? What aspects of your work should result in knowledge that goes beyond your focal study system? What resources would help you to adopt a theoretical framework?

15:00-16:00 **Faculty panel** (Perry deValpine, John Harte, Mike Boots, Adam Arkin, Eoin Brodie, Britt Koskella)