

# Physics Colloquium

## Anders Knospe

### “An Introduction to QCD at High Temperatures”

In high-energy heavy-ion collisions, strongly interacting matter undergoes a phase transition to a "quark-gluon plasma" (QGP), a unique state of matter that existed shortly after the Big Bang. My research is devoted to understanding these collisions throughout their evolution, particularly the properties of the QGP and the later hadron-gas phase. I will introduce the basics of heavy-ion physics and describe the unusual phenomena we observe in the QGP, including hydrodynamic flow, suppression of high-momentum hadrons, and jet quenching. I will also describe how hadronic resonances (short-lived hadrons) and heavy quarkonia (bound states of c or b quarks) are used as probes to study the properties of ion-ion collisions. Finally, I will discuss what lies ahead for heavy-ion physics and talk about the exciting new measurements that will be possible with the proposed electron-ion collider.

*Dr. Anders Knospe of the University of Houston is a member of the ALICE Collaboration at the LHC at CERN. He studies ultra-relativistic heavy-ion physics with the goal of understanding the behavior of strongly-interacting matter at high temperatures. He uses rare, short-lived particles to probe ion-ion collisions to learn about their properties and time evolution. Dr. Knospe is a graduate of Pomona College and Yale University and was previously a postdoctoral fellow with the University of Texas at Austin.*

Physics Faculty and Search Committee Candidate

**Tuesday, February 12<sup>th</sup> in LL 316 at 4:10**  
**Refreshments available at 3:45**