1163-54-1420 **Nickolas A. Castro*** (nacastro@uark.edu) and **Jason Joseph** (jason.joseph@rice.edu).

Relative group trisections and smooth 4-manifolds with boundary. Preliminary report.

A trisection of a smooth, compact, 4-manifold is a decomposition into three diffeomorphic pieces, where the complexity of the 4-manifold lies in how these pieces are attached to one another. In the case of a manifold with boundary, a *relative trisection* induces a structure on the boundary known as an open book decomposition. In this talk, we will provide a correspondence between relative trisections of 4-manifolds with boundary and commutative cubes of groups, known as *relative group trisections*. This extends group trisections of closed 4-manifolds, due to work of Abrams, Gay, and Kirby, to the relative setting. The key difference in the relative case is that a relative group trisection also encapsulate the data of the induced open book decomposition. We will briefly discuss open questions relating to relative group trisections. (Received September 15, 2020)