

Motions of articulated structures using graphs of groups

Speaker: Klara Stokes

Abstract: A bar-and-joint framework in Euclidean space exemplifies an articulated structure. In recent work, we utilized incidence geometries to model articulated structures and introduced the use graphs of groups to describe the motions of articulated structures across a variety of geometric spaces in an axiomatic manner. This approach not only models bar-and-joint frameworks but also accommodates more complex structures. Our model is purely algebraic; the selection of groups within the graph of groups dictates the geometry under consideration. In fact, the model facilitates the study of rigidity theory with no reference to geometry beyond a group acting upon a space. This paradigm shift opens up new and exciting questions in rigidity theory.