

# RIGIDITY OF HYPERGRAPHS UNDER ALGEBRAIC CONSTRAINTS

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I will talk about the connection between graph rigidity theory and tensor completions. Graph rigidity theory studies the rigidity or flexibility of bar-joint linkages in Euclidean space. In other words, rigidity theory of bar and joint frameworks studies uniqueness of point configurations given some of the pairwise distances. Replacing the distance measurement with a general polynomial function, the rigidity of frameworks relates to the unique identifiability of certain tensor completions. In this talk I will present algebraic and geometric problems emerged through such a formulation, and the connection to the classical secant varieties.

*Joint work with James Cruickshank (National University of Ireland Galway, Ireland), Anthony Nixon (Lancaster University, UK) and Shin-ichi Tanigawa (Tokyo University, Japan).*