

Motions of realisations of hypergraphs

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Abstract: In this talk, we will focus on rigidity of realisations of hypergraphs as points and straight lines in the plane. We will discuss how to determine whether a realisation of a hypergraph is rigid, in the sense that there are no motions of the realization that preserve the incidences of points and lines, and the distance between any pair of points that lie on a line. This is a model for rigidity of structures of rigid rods connected in joints.

We will also discuss motions of realisations of hypergraphs that preserve the incidences between points and lines. We will see that classical theorems in projective geometry, such as Pascal's theorem, make determining rigidity with respect to such motions a difficult problem.

The talk will be based on joint work with K.Stokes and L-D. Öhman, as well as work in progress, joint with L.Berman, B.Schulze, B.Servatius, H.Servatius, K.Stokes and W.Whiteley.