Double circuits in rigidity matroids

Speaker: Anthony Nixon

Abstract: Lovasz (1980) introduced the concept of a double circuit in a matroid in their analysis of the matroid matching problem. Since then, double circuits have been underutilised in rigidity theory with the only reference I'm aware of being work of Makai (2008) who was also motivated by matroid matching. In this talk I will describe double circuits, focussing on the d-dimensional rigidity matroid, and some of their properties. As an application, I will show how to extend the coning lemma of Whiteley to understand rigidity in (d+1)-space for graphs containing a vertex adjacent to almost all other vertices.

This is joint work with John Hewetson, Bill Jackson and Ben Smith.