

Rigidity and Ultrarigidity of Periodic Frameworks

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In this talk, I will discuss bar-joint frameworks in \mathbb{R}^n with periodic symmetry (i.e. invariant under some lattice of translations) and their rigidity properties, specifically whether such frameworks allow periodic motions with respect to any sublattice. Those without any such motions are called ultrarigid. Our results include an algorithm for determining if a given framework is infinitesimally ultrarigid, and in dimension 2, a combinatorial characterization of periodic frameworks which are generically ultrarigid when the framework has the minimum number of edge orbits required.

Keywords: rigidity, bar-joint framework, periodic, representations of finite groups