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Combinatorial Rigidity on Surfaces

Laman's theorem provides a characterisation of minimally rigid generic 2-dimensional (bar-joint) frameworks in purely combinatorial terms, while the corresponding characterisation in 3-dimensions remains a hard open problem. In this talk we will show that such characterisations are possible on frameworks constrained to certain 2-dimensional surfaces. The key step we will discuss is to provide inductive constructions of the classes of $[2,l]$ -tight graphs (for $l=1,2,3$).