

## Universal Rigidity for Ladders on a Line

Bryan Chen; Robert Connelly\*, Cornell University; Steven J. Gortler, Harvard University; Anthony Nixon, Lancaster University; and Louis Theran, University of St Andrews.

A tensegrity is a configuration of points in Euclidean space which are connected by cables which cannot increase in length and struts which cannot decrease in length. If those length constraints fix the configuration up to congruence in any higher dimensional Euclidean space, it is called **universally rigid**. Determining when a tensegrity is universally rigid, even when it is in the line, can be quite interesting and relevant in unexpected places, like grids in the plane. Tibor Jordan asked if a tensegrity in the line was only determined by the order of its points. It is not, and an example is when the graph of the tensegrity is a ladder with its points on the line. When that ladder is universally rigid, it is determined by a single polynomial in the coordinates of its configuration. Models of the ladder and other tensegrities will be shown.

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