

Algebraic Methods in Kinematics

Homework 1

Let $G = (V, E)$ with labeling $\lambda : E \rightarrow \mathbb{C}$ be a rigid labelled graph. The compatibility condition for embeddings $\rho : V \rightarrow \mathbb{C}^2, v_i \rightarrow (x_i, y_i)$ can be expressed by conditions

$$(x_i - x_j)^2 + (y_i - y_j)^2 - \lambda_{ij} = 0, (i, j) \in E,$$

together with 2 equations $x_1 = y_1 = x_2 = 0$ that reduce equivalent realizations. Show that the homogenization of this system of equations has infinitely many solutions.