Rigidity Percolation in Mechanical Metamaterials

LUUK LUBBERS, MARTIN VAN HECKE, Leiden University / AMOLF — We explore rigidity percolation of non-generic diluted tilings of rigid squares coupled by hinges. These compose the backbone of a range of mechanical metamaterials, and allow for a single degree of freedom motion even for full filling. We numerically study the onset and nature of additional floppy modes which arises when sufficient square tiles are removed.