

Phase transitions in tilings constructed from stationary fusion rules

Natalie Frank, Vassar College

A stationary fusion rule accepts certain tile sets and constructs, via an iterative process, infinite tilings. Self-similar tilings such as the Penrose tiling can be seen as the output of a stationary fusion rule. Some fusion rules can accept a continuum of tile sets controlled by parameters. In this case, properties of the tiling spaces that result sometimes undergo transitions in their dynamical, topological, combinatorial, and/or geometric properties as the parameters change. In this talk we will present fundamental examples and show how their properties either change or remain stable depending on the fusion rule being used.