
CRAIG KAPLAN, University of Waterloo

The path to aperiodic monotiles

An aperiodic monotile is a shape that admits tilings of the plane, but none that have periodic symmetry. The question of whether aperiodic monotiles exist, also known as the "einstein problem", was open until 2023, when a team of amateur and professional mathematicians (including me) proved that a shape called the "hat" is aperiodic. The einstein problem is connected to a number of other deep questions in tiling theory, some of which remain open. I will talk about aperiodic tilings and the discovery of the hat, and about some of the connections between the einstein problem and other problems in tiling theory that I continue to study.