Hilbert's 18th problem and undecidability of translational tiling

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Hilbert's 18th problem shows that, at the dawn of the twentieth century, researchers had not yet grasped the possibility of aperiodicity and undecidability in the plane-tiling problem. The first breakthroughs in these directions came with Hao Wang's 1961 formulation of the domino problem. In this talk, the speaker will survey the ensuing history of undecidability in translational tiling, including some recent results of our own.