Sam Northshield Topographs; Conway and Otherwise, Fibonacci Quart. 58 (2020), no. 5, 172–189.

Abstract

A planar embedding of the three-regular tree results in a hyperbolic tiling of the plane. A topograph is this figure along with numbers (or a generalization of numbers) assigned to to these tiles such that a certain local rule is satisfied. Conway topographs, the first topographs to have been studied, are closely related to the theory of quadratic forms. Changing the type of "number" or the local rule gives rise to other types of topograph. We study several of these and their relationship with various areas of mathematics.