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Leapfrog and Related Operations on Toroidal Fullerenes

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Abstract

A 4-valent square tiled toroid is transformed into 3-valent hexagonal (and other polygonal) lattices either by simple cutting procedures or by some more elaborated operations such as leap-frog and related transformations. Tiling or embedding isomers can be interchanged by means of such operations on toroidal maps, for which rigorous definitions and some theorems are given. Parents and products of most important operations are illustrated.

Author Keywords

3-valent hexagonal tilings; 4-valent square tilings; Carbon allotropes; Leapfrog transformation; Toroids

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