

**Goodman-Strauss, Chaim**

**Matching rules and substitution tilings.** (English) Zbl 0941.52018  
[Ann. Math. \(2\) 147, No. 1, 181-223 \(1998\)](#).

This long paper deals with methods of characterization of substitution tilings which are described in detail in a series of announced papers (making the readability more difficult).

A substitution tiling is a certain globally defined hierarchical structure in the Euclidean  $d$ -space  $E^d$ . The author shows that every substitution tiling of  $E^d$ ,  $d > 1$ , can be enforced with finite matching rules, subject to a mild condition: The tiles are required to admit a set of “hereditary edges” such that the substitution tiling is “sibling-edge-to-edge.” As an immediate corollary, infinite collections of forced aperiodic tilings are constructed. The main theorem covers all known examples of hierarchical aperiodic tilings.

Reviewer: [E.Hertel \(Jena\)](#)

**MSC:**

[52C22](#) Tilings in  $n$  dimensions (aspects of discrete geometry)  
[05B45](#) Combinatorial aspects of tessellation and tiling problems

Cited in **43** Documents

**Keywords:**

[matching rules](#); [aperiodic tilings](#)

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