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Three-periodic nets and tilings: regular and related infinite polyhedra. (English)

Zbl 1370.52061

Acta Crystallogr., Sect. A 64, No. 3, 425-429 (2008).

Summary: The six infinite regular (flag-transitive) polyhedra with finite faces of Grünbaum and Dress are described as tilings of the P and D periodic minimal surfaces. The three polyhedra formed by analogous tiling of the G surface are also described. The nets of these polyhedra are identified. It is shown how these polyhedra, and the nets they carry, could be found by mining the EPINET database of structures. The nets of regular three-periodic polyhedra with infinite helical or zigzag faces are also identified.

MSC:

- [52C22](#) Tilings in n dimensions (aspects of discrete geometry)
- [51M20](#) Polyhedra and polytopes; regular figures, division of spaces
- [82D25](#) Statistical mechanical studies of crystals

Cited in **7** Documents

Keywords:

[infinite polyhedra](#); [nets](#); [tilings](#)

Software:

[EPINET](#)

Full Text: [DOI](#)