



Topological Invariants for Projection Method Patterns

By Alan Forrest, John Hunton, Johannes Kellendonk

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 Paperback. Book Condition: New. 200 x 171 mm. Language: English . Brand New Book. This memoir develops, discusses and compares a range of commutative and non-commutative invariants defined for projection method tilings and point patterns. The projection method refers to patterns, particularly the quasiperiodic patterns, constructed by the projection of a strip of a high dimensional integer lattice to a smaller dimensional Euclidean space. In the first half of the memoir the acceptance domain is very general - any compact set which is the closure of its interior - while in the second half we concentrate on the so-called canonical patterns. The topological invariants used are various forms of K -theory and cohomology applied to a variety of both C^* -algebras and dynamical systems derived from such a pattern. The invariants considered all aim to capture geometric properties of the original patterns, such as quasiperiodicity or self-similarity, but one of the main motivations is also to provide an accessible approach to the the K_0 group of the algebra of observables associated to a quasicrystal with atoms arranged on such a pattern. The main results provide complete descriptions of the (unordered) K -theory and cohomology of codimension 1...



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