Thesis Defense

Aperiodicity in Topological k-Graphs

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Abstract

The condition "every cycle has an entry" first appeared in the literature in Kumjian, Pask, and Raeburn's paper on Cuntz-Krieger algebras of directed graphs, where it was called Condition (L). It provides a necessary condition for simplicity of the associated graph algebra. This condition has been generalized to aperiodicity conditions in the theory of topological graphs (Katsura), k-graphs (Kumjian, Pask), and the unifying theory of topological k-graphs (Yeend). We'll discuss the details of these generalizations as well as the theorems associated with them. We'll then introduce a Condition (F) on the finite paths of a topological k-graph that is equivalent to the corresponding aperiodicity condition. Hence we obtain a condition which is much easier to check than the aperiodicity of infinite paths.