

Prime, Composite and Fundamental Kirchhoff Graphs

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Given a set of n vectors in any vector space over the *rational*s, suppose that $k < n$ are linear independent. Kirchhoff graphs are vector graphs (graphs whose edges are these vectors), whose cycles represent their dependencies and whose vertex cuts are orthogonal to these cycles. This presentation discusses Kirchhoff graph tilings based on their edge vector uniformity, with particular emphasis on prime Kirchhoff graphs (those that have no Kirchhoff subgraphs), composite Kirchhoff graphs (those that are not prime), and Fundamental Kirchhoff graphs (smallest prime Kirchhoff graphs that can generate other prime and composite Kirchhoff graphs). This presentation depends on the numerical construction of Kirchhoff graphs.

Keywords: Kirchhoff graphs, graph tiling