

Abstract

The Critical Group Revisited

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The critical group of a connected graph is an abelian group, the order of which is equal to the number of spanning trees in the graph. It is closely related to the Laplacian operator, and it arises in several contexts, such as chip-firing processes.

In this talk I shall discuss the problem of finding good algorithms for carrying out calculations in the critical group. This leads to consideration of the associated 'discrete logarithm problem', and is analogous to current work in cryptography.