

The background of the slide features a large, faint watermark of the University of Colorado seal. The seal is circular and contains the text 'UNIVERSITY OF COLORADO' around the top and '1876' at the bottom. In the center of the seal is a figure holding a torch and a book, with a mountain range in the background.

After the Explosion: An Analytical Look at Boundary Problems for Continuous Time Markov Chains

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Refreshments at 12:15pm

Abstract: This talk treats random walkers on infinite edge-weighted undirected graphs, where the state to state transition time is governed by the corresponding edge weight. These problems, a class of continuous time Markov chains, can be interpreted as both differential equations and probability models. For infinite graphs inspired by transport in biological networks, these Markov chains face the problem of 'explosions': what do you do if you run off the graph in finite time?

The talk will describe a large class of graphs for which the explosion problem may be resolved using graph boundary conditions. The classic Dirichlet problem, which considers the existence of harmonic functions, is also treated.