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STUDENT SEMINAR

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303 Whitehead Hall
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A METHOD FOR FINDING EXACT SITE-PERCOLATION CRITICAL THRESHOLDS FOR A CLASS OF LATTICES

Abstract

Using a generalized version of the star–triangle transformation, a method was recently developed to determine the exact bond-percolation critical thresholds for lattices in a certain class. By a bond-to-site transformation, the result extends to finding exact site-percolation critical thresholds for the line lattices of lattices in the class. We view the problem from the site-percolation perspective and identify a method to find the exact site-percolation critical threshold for lattices with certain properties. This allows us to solve for the site-percolation critical thresholds for lattices not arising as line lattices of bond models, thereby generalizing the bond-model results.