Timár, Ádám  
Boundary-connectivity via graph theory.  (English) Zbl 1259.05049  

Summary: We generalize theorems of H. Kesten [Lect. Notes Math. 1180, 125–264 (1986; Zbl 0602.60098)] and of J. Deuschel and A. Pisztora [Probab. Theory Relat. Fields 104, No. 4, 467–482 (1996; Zbl 0842.60023)] about the connectedness of the exterior boundary of a connected subset of $\mathbb{Z}^d$, where “connectedness” and “boundary” are understood with respect to various graphs on the vertices of $\mathbb{Z}^d$. These theorems are widely used in statistical physics and related areas of probability. We provide simple and elementary proofs of their results. It turns out that the proper way of viewing these questions is graph theory instead of topology.

MSC:
05C10 Planar graphs; geometric and topological aspects of graph theory  
05C40 Connectivity  
05C63 Infinite graphs  
20F65 Geometric group theory  
60K35 Interacting random processes; statistical mechanics type models; percolation theory

Full Text: DOI

References:


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.