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Obtaining the fractal dimensions and length distributions for the external hulls of Q-state Potts model clusters DAVID ADAMS, LEONARD SANDER, ROBERT ZIFF, University of Michigan — We obtain the fractal dimensions of the complete and external hulls of Q-state Potts model clusters. We grow percolation clusters (Q=1) using the Leath method. For Q>1 up to the upper critical dimension (Q=4), we grow Fortuin-Kasteleyn (FK) clusters using the Swendson-Wang method. Our results for fractal dimension for the complete and external hulls agree with the predictions of Duplantier. We also obtain the distribution of complete and external hull lengths and cluster height. For a given Q, the distributions for different size systems can be collapsed using scaling. The distributions of heights display simple exponential tails, which can be understood in terms of hull walks and the geometry of the system.

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