

A numerical study of self-avoiding walks on diluted lattices

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We investigated self-avoiding walks on diluted square lattices around the percolation threshold and in particular on the incipient critical cluster. Using a new algorithm, we were able to exactly enumerate walks of up to a thousand steps, enabling us to estimate the scaling exponents for the mean squared end-to-end distance and the average number of chain conformations with high accuracy. While our results for the end-to-end distance are in good agreement with previous findings, those for the number of conformations are surprising and appear to be in conflict with the commonly assumed scaling law.