

# Effective resistance and random walk in anisotropic long-range percolation

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We formulate anisotropic long-range percolation model on a vertex set of a two-dimensional square lattice, where the probabilities that vertically long open bonds exist may be different from the probabilities that horizontally long open bonds exist. It is an extension of the usual long-range percolation on  $\mathbb{Z}^2$  in a certain sense. In such a model, we especially give some estimates on the effective resistance. Also, we discuss the recurrence and transience for the simple random walk on the random graph created by this model.