

## Graver basis for an undirected graph and its application to testing the beta model of random graphs

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**Abstract** In this paper, we give an explicit and algorithmic description of Graver basis for the toric ideal associated with a simple undirected graph and apply the basis for testing the beta model of random graphs by Markov chain Monte Carlo method.

**Keywords** Markov basis · Markov chain Monte Carlo · Rasch model · Toric ideal