

## Free Energy Barriers of Spin Glasses

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The Sherrington-Kirkpatrick (SK) mean-field model and the Edwards-Anderson (EA) nearest-neighbor spin-glass model are investigated by means of Monte Carlo simulations. To this end, we employ a combination of the multioverlap algorithm with the parallel tempering method. We investigate the finite-size scaling behaviour of the free-energy barriers which are visible in the probability density of the Parisi overlap parameter. Assuming that the mean barrier height diverges with  $N$ , the number of spins, as  $N^\alpha$ , our data for the SK model show good agreement with the theoretical value  $\alpha = 1/3$  [1]. We compare the scaling behaviour to the data from the EA model [2].

[1] E. Bittner and W. Janke, *Europhys. Lett.* **74**, 195 (2006).

[2] E. Bittner, A. Nußbaumer, W. Janke, *Free-Energy Barriers of Spin Glasses*, in NIC Symposium 2008, G. Münster, D. Wolf, M. Kremer (Editors), John von Neumann Institute for Computing, Jülich, NIC Series, **39**, 229 (2008).