

## **Book Review: *Finite Size Scaling and Numerical Simulation of Statistical Systems***

**Finite Size Scaling and Numerical Simulation of Statistical Systems.**  
V. Privman, World Scientific, Singapore, 1990.

The volume under review is a 500-page collection of articles connected with the subject of finite-size scaling. While statistical mechanics tends to address the infinite-system limit, there is no shortage of situations where it is necessary to deal with systems that are strictly finite. Finite-size scaling theory has proved particularly adept in treating problems of this kind: for example, it is now routinely used in interpreting Monte Carlo simulations of critical phenomena in order to eliminate the size dependence from the measurements.

The opening chapter is a long (100-page) overview of the subject by the volume's editor: first- and second-order phase transitions are discussed, and a selection of model systems surveyed. This is followed by a chapter by D. Jasnow dealing with finite-size scaling in the renormalization group context, and a chapter on the finite spherical model (whose merit is that it is analytically soluble in the infinite limit) by J. Rudnick. The important task of the theory in introducing finite-size corrections into the interpretation of Monte Carlo studies forms the contents of three articles by K. Binder, D. Landau, and K. Mon. Chapters by M. Nightingale and M. Henkel deal with phenomenological renormalization, Hamiltonian limits, and conformal invariance. The final three articles by G. Bhanot, P. Young, and L. Schulman address lattice gauge theory, spin glasses, and metastability, all with the finite-size issue in mind.

The book provide a useful collection of material for workers in the field, but the level of presentation requires that the reader be well versed in the subject; the absence of any kind of index does not enhance the accessibility of the collection. The articles were provided in camera-ready form, with the result that the typography is heterogeneous in the extreme.

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