Book Review: *Disorder and Competition in Soluble Lattice Models*

Disorder and Competition in Soluble Lattice Models. W. F. Wreszinski and
S. R. A. Salinas, World Scientific, Singapore.

Statistical mechanics has expanded so strongly that the production of text-
books has not kept pace. No question, the basics are very well covered. But
as soon as one teaches a somewhat advanced course, the lack is badly felt.
There are many excellent review articles. But in general their goal is a complete
and up-to-date presentation of a particular area of research. Disregarding
famous exceptions to the contrary, reviews do not serve the purpose of accom-
paning reading for a lecture course. The book under review partially fills this
gap. It covers disordered spin systems, i.e., diluted magnets, random-field Ising
models, and spin glasses. The second big topic is models with competing inter-
actions leading to commensurate and incommensurate phases. There is also a
chapter on corresponding issues in quantum spin systems.

   The book grew out of a course given at the University of Sao Paulo. The
traces can still be seen. The deductions are carried out step by step. Longer
computations and necessary background material are delegated to appendices.
The authors treat mostly exactly solved models, or at least models which can
be treated analytically to a considerable extent. Although such a boundary
condition poses some severe restrictions, in my opinion, tractable models still
form the basis for a good understanding. Those readers who want to enter the
subject more deeply are helped by an extensive list of references.

   I enjoyed reading the book and I tried it on my class with the chapter
on the Frenkel–Kontorova model. The book passed the test and I recom-
mend it for advanced courses on statistical mechanics. The book also serves
as an introductory reading to intriguing properties of lattice spin models.

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