



**A Modern Approach to Critical Phenomena**, Igor Herbut, Cambridge University Press, 2007, *pp* 207, ISBN 978-521-85452-8 (hc), \$65.00.

Herbut's book on Critical Phenomena aims to introduce the physics and techniques of phase transitions. Within such a short treatise, he covers both the standard model systems usually discussed in this context (phase transitions in magnets, superfluids and superconductors), as well as such exciting modern topics as gauge fluctuations in superconductors, the Kosterlitz-Thouless transition, duality transformations and quantum phase transitions. The choice of material clearly demonstrates Herbut's place in a modern research context.

Unfortunately, as an introductory text, Herbut assumes not only basic quantum and statistical mechanics, but also a working knowledge of field theory; which is not stated at the outset, but becomes clear in his choice of techniques to demonstrate a point already in the introductory material. However, a student with such a background in field theory would probably already have some familiarity with the basic material, only learning really from the later, more specialised, topics. For a truly introductory text, there is no need to rely on the heavy machinery of quantum field theory: for example, there is the more introductory text by Nigel Goldenfeld or the more recent book by Mehran Karder. Some students may still prefer this succinct approach, especially if they are concurrently learning field theory.

To complement the text, Herbut provides numerous problems that should be worked through to follow the material. Each problem is solved in varying levels of detail. To use the book as a course text, however, an instructor would have to create his own problems for assignments, quizzes or exams (or find them in another text); although, this is perhaps desirable, at least from the students' point of view.

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