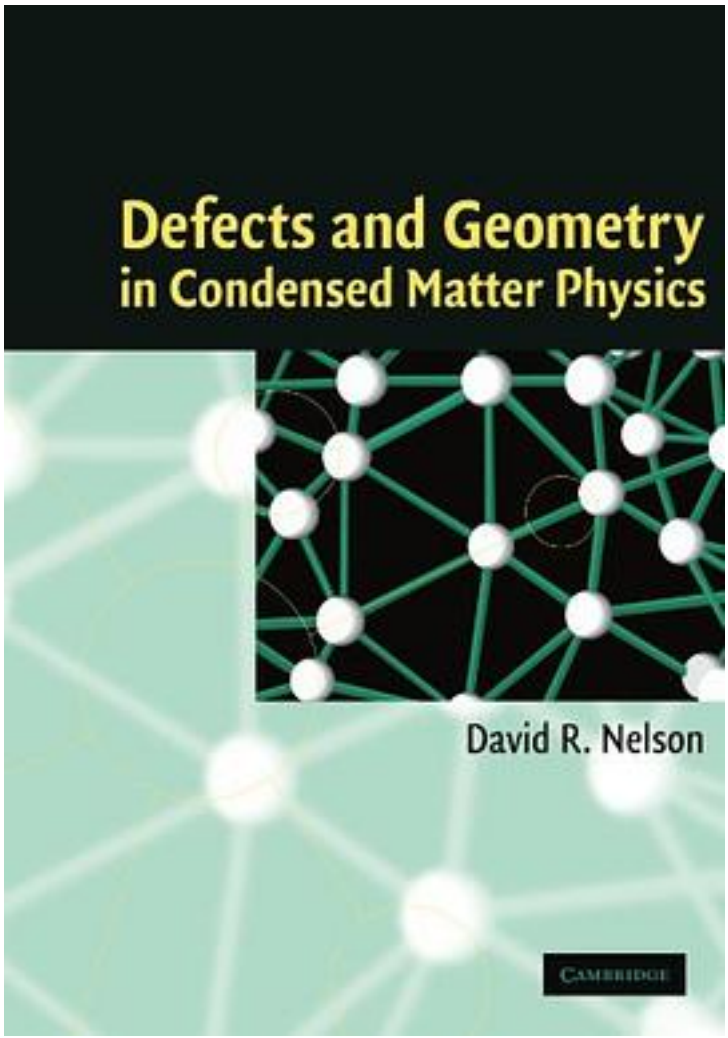
Defects and Geometry in Condensed Matter Physics



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Thermally excited defects such as vortices, disclinations, dislocations, vacancies and interstitials play a key role in the physics of crystals, superfluids, superconductors, liquid crystals and polymer arrays. Geometrical aspects of statistical mechanics become particularly important when thermal fluctuations entangle or crumple extended line-like or surface-like objects in three dimensions. In the case of entangled vortices above the first-order flux lattice melting transition in high temperature superconductors, the lines themselves are defects. A variety of low temperature theories combined with renormalization group ideas are used to describe the delicate interplay between defects, statistical mechanics and geometry characteristic of these problems in condensed matter physics. David Nelson provides a coherent and pedagogic graduate level introduction to the field of defects and geometry.

作者介绍:

目录:

Defects and Geometry in Condensed Matter Physics_下载链接1_

标签

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Geometry

评论

假如不做这方向，个人觉得读这本书，不如直接读Nelson和Halperin的PRB文章。http://prb.aps.org/abstract/PRB/v19/i5/p2457_1 insightful可以看成是KT相变的一般推广。

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书评

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