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Monte Carlo optimization applied to symmetry breaking. (English) Zbl 0940.81001
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Summary: The authors present a Monte Carlo optimization algorithm to search for the boundary points of the orbit space which is important in determining the symmetry breaking directions in the Higgs potential and the Landau potential. This algorithm is robust and generally applicable. For large problems they have also developed a parallel version. They apply the method to the Landau potential of the d -wave abnormal superconductor, He-3, and a SU(5) Higgs potential.

MSC:

- 81-08 Computational methods for problems pertaining to quantum theory
- 81R40 Symmetry breaking in quantum theory
- 82D55 Statistical mechanics of superconductors
- 82B80 Numerical methods in equilibrium statistical mechanics (MSC2010)

Keywords:

[FORTRAN 77](#); [C-language](#); [Monte Carlo optimization algorithm](#); [symmetry breaking](#); [Higgs potential](#); [Landau potential](#); [superconductor](#)

Software:

[MCMIN](#); [ISOTROPY](#)

Full Text: [DOI](#)

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