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The effects of the one-step replica symmetry breaking on the Sherrington-Kirkpatrick spin glass model in the presence of random field with a joint Gaussian probability density function for the exchange interactions and random fields

Ioannis A. Hadjiagapiou, Ioannis N. Velonakis



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Research Highlights

Manuscript Title: The Sherrington-Kirkpatrick spin glass model in the presence of a random field with a joint Gaussian probability density function for the exchange interactions and random fields

Physica A

- Sherrington-Kirkpatrick Ising spin glass model, in the presence of a random magnetic field, is studied.
- The exchange integral interaction J_{ij} and random magnetic field h_i are drawn from a joint Gaussian probability density function.
- The one-step replica symmetry breaking is applied.
- The system exhibits two consecutive spin glass transitions.
- The zero temperature entropy value is partly remedied.

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