

RECENT PROGRESS IN RANDOM MAGNETS

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Editor

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Foreword

Shortly after moving to McGill I borrowed some conference proceedings from a colleague. When I explained that I needed references for a short review involving spin glasses, he asked: "Why are you wasting your time with spin glasses? That field is dead." This book is in part a reply to that comment. The number and variety of contributions collected here should convince even the most sceptical reader that spin glasses are alive and well. Moreover significant advances are being made.

In collecting chapters for this book I had three aims in mind: (i) they should reflect areas where progress has been made in the last few years; (ii) they should be primarily experimental in content and (iii) they should actually be about spin glasses. I cannot claim total success in the first, as that would mean that I believed the book to be complete. All I can hope is that the omissions are not too obvious. The second aim was to balance the overwhelmingly theoretical content of most recent books. While there is nothing wrong with theory in moderation, I felt that it was high time that the other side got a chance. Finally, the field of "spin glasses" has broadened over the years to include such diverse areas as complexity, neural networks and fractals, which, to my mind are somewhat off the subject. I therefore restricted the content to real spin glasses *i.e.* systems with a random magnetic ground state. I then took a liberal definition of spin glasses to keep the coverage reasonably broad – essentially all random magnetic systems are included – so that random fields and random anisotropy are included as well as the canonical random exchange.

Those who are interested in reviews of the current theoretical situation are referred to several recent books: "*Spin glasses*" by K.H. Fischer and J.A. Hertz (Cambridge, 1991) which provides a thorough introduction to the theory; "*Spin glass theory and beyond*" by M. Mezard, G. Parisi and M.A. Virasoro (World Scientific, 1987), which also includes reprints of the major papers over the last twenty-five years; "*Spin glasses*" by K. Binder and A.P. Young in *Reviews of Modern Physics* **58** (1986), 801; and the proceedings of the two Heidelberg Colloquia on spin glasses (1983) and glassy dynamics (1987) edited by Morgenstern and van Hemmen (Springer).

My thanks go first to the contributors, without whom this book would not exist. They endured a barrage of phone calls and faxes with good humour, and always had a new excuse. I naïvely thought that all the computers would make the job easier: the contributors could simply e-mail in the files and I could print them out. However, there seems to be a semi-infinite supply of mutually incompatible wordprocessors. As a result, I am indebted to D. Koziol who re-formatted many of the files and fixed them up so they could be printed.

D.H. Ryan
McGill University

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