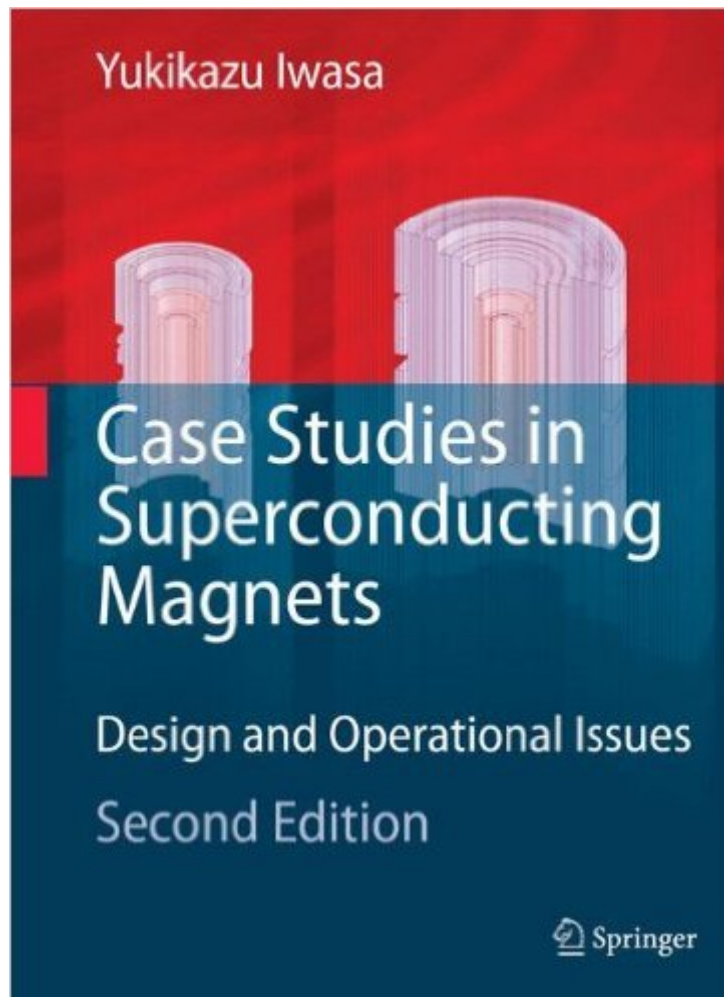


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# Case Studies In Superconducting Magnets: Design And Operational Issues



## Synopsis

The 2nd edition emphasizes two areas not emphasized in the 1st edition: 1) high-temperature superconductor (HTS) magnets; 2) NMR (nuclear magnetic resonance) and MRI (magnetic resonance imaging) magnets. Despite nearly 40 years of R and D on superconducting magnet technology, most areas, notably fusion and electric power applications, are still in the R and D stage. One exception is in the area of NMR and MRI. NMR magnets are very popular among chemists, biologists, genome scientists, and most of all, by drug manufacturers for drug discovery and development. MRI and NMR magnets have become the most successful application of superconducting magnet technology and this trend should continue. The 2nd edition will have new materials never treated formally in any other book of this kind. As with the 1st, most subjects will be presented through problem format to educate and train the designer.

## Book Information

Hardcover: 682 pages

Publisher: Springer; 2nd ed. 2009 edition (April 1, 2009)

Language: English

ISBN-10: 0387097996

ISBN-13: 978-0387097992

Product Dimensions: 7.7 x 1.5 x 10.3 inches

Shipping Weight: 3.4 pounds (View shipping rates and policies)

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A rigorous yet readable magnum opus; a comprehensive compilation of magnet-design facts, insights, methods and case studies; a tome of 682 pages, 210 figures, 87 tables and 885 references, meticulously edited and proofread to minimize the typos that can detract from the utility of a textbook or handbook. Chapters include Electromagnetic Field Theory, Fields & Forces, Cryogenics, Magnetization, Stability, AC Losses and Protection. Among the topics likely to be of especial interest and value to many readers are magnetic shielding, induction heating, magnetic forces, stresses and strains in a bonded solenoid, field expansion in Cartesian coordinates, and

field-error coefficients. Of great value to almost everyone are the Appendix figures and tables of the physical properties of cryogenics and insulators and the physical and electrical properties of normal metals and superconductors.

If you are about to learn the basics of superconducting magnets, you must have this book. The author is one of the best engineers in this area.

An excellent overview of superconducting magnet design with a lot of current information on HTS.

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