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Titolo	Biological effects of static magnetic fields / / Xin Zhang, editor
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ISBN	9789811988691 9789811988684
Edizione	[Second edition.]
Descrizione fisica	1 online resource (429 pages)
Disciplina	612.01442
Soggetti	Electromagnetic fields - Health aspects Electromagnetism - Physiological effect
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Chapter 1. Magnetic Field Parameters and Biological Sample Differences that Lead to Differential Bioeffects -- Chapter 2. Static Magnetic Field Direction-induced Differential Biological Effects -- Chapter 3. Magnetic Properties of Biological Samples -- Chapter 4. Molecular Mechanisms for Electromagnetic Field Biosensing -- Chapter 5. Controlling Cell Membrane Potential with Static Non-uniform Magnetic Fields -- Chapter 6. Impact of Static Magnetic Fields on Cells -- Chapter 7. Impact of Static Magnetic Fields on Microorganisms, Plants and Animals -- Chapter 8. Static Magnetic Fields on Human Bodies -- Chapter 9. Potential Applications of Static Magnetic Fields in Cancer Treatment -- Chapter 10. Effects of Static Magnetic Fields on Diabetes and Its Complications -- Chapter 11. Impacts of Static Magnetic Field on Bone Health -- Chapter 12. Effects of Static Magnetic Fields on the Immune System -- Chapter 13. Biological Effects of Static Magnetic Fields on the Nervous System -- Chapter 14. The Biological Effects of Long-term Static Magnetic Field Exposure -- Chapter 15. Prospects, Pitfalls, and Opportunities for Human Static Magnetic Field Therapy.
Sommario/riassunto	The book summarizes the emerging topic about the effects of SMF on biological samples ranging from single molecules, subcellular compartments, and cells to whole organisms. It also discusses the potential application of SMF in clinical treatment of cancer, pain, diabetes and other diseases. With the development and growing

popularity of modern appliances like MRI in hospitals, the potential impact of magnetic fields on human health is invoking increasing concerns. At the same time, SMF has been explored in the treatment of tumor and other diseases for decades. Nevertheless, there are still some reservations and uncertainties about these treatments, which are largely due to the differential biological effects reported in the literature. These experimental inconsistencies are mainly caused by variations such as different magnetic field types, intensities, treatment time, as well as biological samples examined. The second edition added eight new chapters about new progress in this field including impacts of SMFs, magnetism of biomolecules, and potential of SMFs in the management of bone, pain, diabetes, and immune systems. This volume will help clarify some dilemmas in this field and encourage further investigations in order to achieve a better understanding of the biological effects of SMF, aiming for a rational application of SMF in clinical therapy in the near future. The book is useful for scientists, doctors, and students who are interested in magnetic fields and life sciences.