

Biological Effects of Magnetic and Electromagnetic Fields

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PREFACE

The International Symposium on Biological Effects of Magnetic and Electromagnetic Fields was held from September 3-4, 1993 at Kyushu University in Fukuoka, Japan. Originally, it was only intended to be an informal gathering of many scientists who had accepted my invitation to visit Kyushu University after the XXIVth General Assembly of the International Union of Radio Science (URSI), held in Kyoto prior to our symposium. However, since so many distinguished scientists were able to come, it was decided that a more formal symposium would be possible.

It was a very productive symposium and, as a result, many of the guests consented that it would be a good idea to gather all the information put forth at the meeting and have it published. In addition, although they were unfortunately unable to attend the symposium, many other distinguished scientists had also expressed their wish to contribute to this effort and, in so doing, help to increase understanding in this, as yet, relatively immature field of science.

The question of both positive and negative effects of magnetic and electromagnetic fields on biological systems has become more and more important in our world today as they have become increasingly ubiquitous in the environment, medicine, research, and industry. Not only has it become an important tool for scientists to use in their research, but it is has also become necessary for us to understand how safe it is and what long-term effects it could have on our environment. Topics covered in this book include studies of biomagnetic and electromagnetic fields at the genetic, cellular, and hormonal levels, with both laboratory and epidemiological methods. They include investigations of intended direct effects such as neural stimulation, and unintended indirect effects from such sources as power lines, consumer electronics, and mobile telephones. They address our anxieties about effects such as immune system damage and cancer, and our hopes about potential beneficial uses.

I sincerely hope that our combined efforts in this book help to do more than just stimulate the scientific mind to investigate further. I hope it also makes us take a step back to see and realize how our research is not only limited to the laboratory but reaches out beyond those walls and into our everyday lives.

The symposium that gave birth to this book project was made possible by generous financial support from various companies and organizations, for which I am very grateful. I also thank co-sponsoring organizations for their support, and the members of the Bioelectromagnetic Society who contributed to this book. Sincere thanks are due to Prof. M.A. Stuchly and Prof. P. Bernardi, who organized a commission on "Electromagnetics in Biology and Medicine" at the Kyoto URSI meeting, and to Prof. Masao Saito, who was the coordinator in Japan of the commission. Their work made the planning of the Kyushu symposium possible.

My sincerest thanks to the staff and my colleagues at Kyushu University. I owe a debt of gratitude in particular to Keiji Iramina, Masakazu Iwasaka, and Terumi Asai. Last, but not least, I thank Susanna Heckmann and Deborah W. Mrongowius for all their efforts in putting this book together.

Shoogo Ueno

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