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## Preface

This book deals with various aspects of PET/CT and PET/MRI in oncology. When we began to plan the book, we aimed to give the reader a clear understanding of the physics that underlie these very complex technologies, before describing how the scanners are applied in clinical oncology. We begin with a chapter explaining in some detail how PET/CT and PET/MRI scanners work and how to maximize their inherent qualities for optimum results. The next chapter gives a fairly detailed overview of PET radiochemistry and radiotracers. The third chapter introduces, step by step, the basics of interpreting PET/CT and PET/MRI results. We think these three introductory chapters will provide readers with a strong basis for understanding the technology behind these imaging modalities. This understanding is absolutely necessary to interpret images that can be very complicated indeed, and it provides a foundation for the center of the book, 14 chapters on PET/CT and PET/MRI as applied to the most commonly encountered cancers including HIV issues. The significant role of PET/CT in planning radiotherapy is also included. These chapters are generously illustrated. In the final chapter, the theoretical understanding of the first three chapters and the practical aspects of various oncological situations are brought together with a detailed and thorough chapter on common errors associated with the use of PET/CT and PET/MRI. These are powerful but very complex technologies, and the path to diagnosis is strewn with pitfalls and artifacts that can easily lead the reader to the wrong diagnosis. Foreknowledge of these potential problems will save time and money, and will improve patient care.

All of the authors who participated in this work are renowned experts in their fields, from North America, Europe, Asia and Australia. We are indebted to them for their work and dedication and we hope the book will meet their best expectations.

We would like to dedicate this book to our wives Maribeth, Sakila and Noura and children Cynthia, Katrina, John, Meera, Anjana, Santhiya, Dorra, Elias and Manel. Without their patience and love, this book will certainly will not be public today.

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