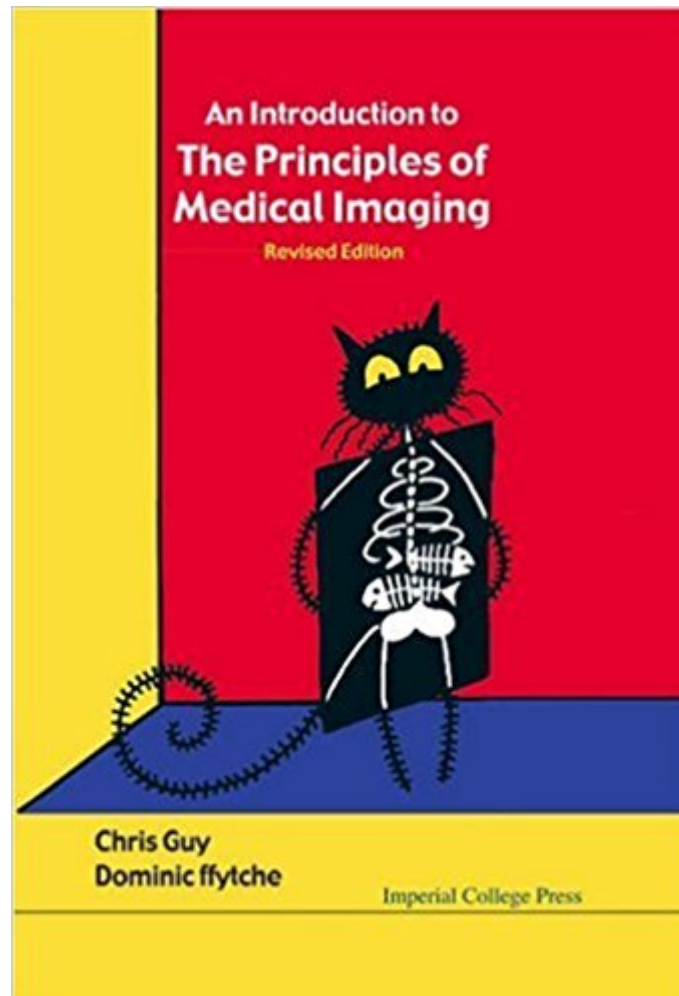




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# Introduction To The Principles Of Medical Imaging



## Synopsis

The introduction of X-ray computed tomography (CT) 25 years ago revolutionized medical imaging; X-ray CT itself provided the first clear cross-sectional images of the human body, with substantial contrast between different types of soft tissue. The enduring legacy of CT is, however, the spur that it gave to the subsequent introduction of tomographic imaging techniques into diagnostic nuclear medicine and the extraordinarily rapid development of magnetic resonance imaging (MRI) over this period. This book is a non-mathematical introduction to the principles underlying modern medical imaging, taking tomography as its central theme. The first three chapters cover the general principles of tomography, a survey of the atomic and nuclear physics which underpins modern imaging, and a review of the key issues involved in radiation protection. The subsequent chapters deal in turn with X-ray radiography, gamma imaging, MRI and ultrasound. The clinical role of diagnostic imaging is illustrated in the final chapter through the use of fictional clinical histories. Three appendices provide a more mathematical background to the tomographic method, the principles of mathematical Fourier methods, and the mathematics of MRI. This revised edition includes new introductory sections on the relevant physics of molecules in general, and water, in particular. Every chapter now has a table of key points with cross-references to other sections. Several figures have also been revised. The book is intended to provide a broad introductory background to tomographic imaging for two groups of readers: the physics or engineering undergraduate thinking of specializing in medical physics, and the medical student or clinician using tomographic techniques in research and clinical practice.

## Book Information

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"This book manages to cover a wide range of subjects in a relatively compact way and could form a useful introductory text ... It is full of many historical details and these are interesting. There are lots of useful technical details in this book and the authors frequently illustrate the formulae they provide with specific numerical examples which helps to put them in context."

Really good book for people who want to know basics about medical imaging and how the images are actually acquired with different medical devices like CT, MRI and X-ray. I bought this book for a course and I got a good grade so I would recommend this to others.

Nice book in a good state. It take only a little bit time to receive it, because we live in Germany.

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