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MRI From Picture to Proton: 2nd ed.

*D.W. McRobbie, E.A. Moore, M.J. Graves, and M.R. Prince, eds.
Cambridge, United Kingdom: Cambridge University Press; 2007,
406 pages, 212 illustrations, \$150.00.*

In this highly readable format, the physics and technologic aspects of MR imaging take the reader through the major techniques of MR imaging. At first glance and as an initial observation, I would have thought the subtitle should have been “From Proton to Picture” as opposed to the reverse. After all, the spinning proton in its various stages of relaxation eventually gives as the “picture.” Anyway, onward with the material.

The authors attempt (and I might say successfully so) to engage the reader with a number of different designs and editorial features including the following: 1) catchy chapter titles, such as “Go with the Flow” for MR angiography, “Spaced Out” for spatial encoding, and “Acronyms Anonymous” for a guide to the pulse sequence jungle, just to name a few; 2)

highlighted areas that address common concerns or that delve more deeply into the science and mathematic considerations in image production; 3) straightforward writing in nearly a conversational manner; and 4) well-designed diagrams and pertinent MR images.

The book is written for the practicing radiologist. It is doubtful that any clinical radiologist would need more

MR basics than the information contained in this book, but this reviewer must add that even when the authors try to make the understanding of MR simple, it still remains complex. There is something here for everybody, ranging from those who want just enough information to understand the underpinnings of the clinical images to those who want a deeper understanding of the mathematic and physics basis of MR imaging. What is particularly attractive here is the inclusion of detailed mathematic and fundamental information, sequestered in each chapter. This can either be read or ignored depending on the level the reader wishes to pursue. Skipping these areas does not detract from the understanding or readability of the material in each chapter. As a few examples, there are contrast agent relaxivity calculations, advanced processing and quantification (such as in perfusion), arterial spin-labeling analysis/determination, calculations for the limits of resolution, plus many, many more. The authors have chosen to display their material in 2 parts, called “The Basic Stuff” and “The Specialist Stuff” (they missed the opportunity to develop some material under a popular heading of “The Right Stuff”). Included in the first part are chapters on image contrast, pixels/matrices, image optimization, artifacts, spatial encoding, relaxation mechanisms, equipment, and bioeffects of radio frequency/gradients/field. Included in the second part are chapters on quality control, pulse sequences, MR angiography, cardiac MR, MR spectroscopy, diffusion/perfusion/activation, parallel imaging, and new acquisition techniques.

For those involved with or starting to develop some of the more advanced protocols in MR, such as functional MR, chemical shift imaging, MR perfusion, or arterial spin-labeling, the explanations and illustrations in these areas are succinct, and the concepts can be grasped after 1 or 2 readings (ie, repeated reinforcement). The book is recommended for all departmental libraries and for individuals seeking a depth of understanding in MR.

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