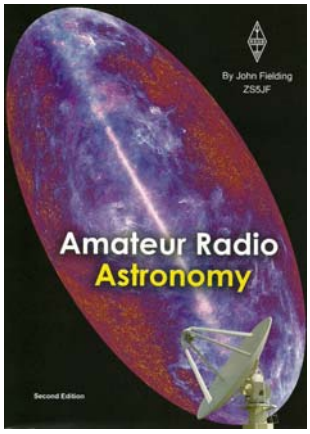
Amateur radio astronomy (2nd edn)

by John Fielding

Radio Society of Great Britain, 2011. ISBN 978-1-905-08667-2. pp 375, £16.99 (pbk).

Ever since its first publication in 2006 John Fielding's book has been recommended reading for those interested in the more practical aspects of building radio telescopes. Particularly useful are the chapters describing antenna and receiver design principles along with the key parameters that determine their effectiveness within radio telescopes. Others include details of practical low noise amplifiers, logarithmic amplifiers and the measurement of receiver noise performance. The author's experience in designing and constructing hardware is demonstrated through numerous snippets of advice and comments on implementation.



The book also includes a chapter on the historical development of radio astronomy, from the early contributions of Jansky and Reber, through the technology impetus created by the Second World War, to the rush to apply the new techniques (and the abundant hardware!) in the years that followed. This reveals the significant contributions to radio astronomy made by amateurs, and how advanced Germany was in the development of radar before the war.

The new edition includes a modest amount of new material in some chapters and a more substantial amount on feed horn design and the construction of parabolic reflectors. A welcome addition is a chapter on the mechanical considerations of antenna mounting and positioning systems.

The title of the book is apposite as it is primarily aimed at radio amateurs wishing to use their skills to explore new challenges. Although well illustrated with circuit schematics, photographs and drawings, there is an assumed knowledge of circuit layout and constructional techniques, both mechanical and electronic. There is also a strong bias towards areas of amateur radio interest, such as meteor scatter and radar, at the expense of applications such as receiving solar or galactic emissions, but this does not detract from the book's coverage of the general principles of antenna and receiver design.

There are other publications which cover individual areas in more detail, but John Fielding's book provides an accessible treatise on the evolution of radio astronomy and the fundamentals that underpin telescope design.

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