



Springer

1st
edition1st ed. 2019, Approx. 680 p.
2 volume-set.**Printed book**

Hardcover

Printed book

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ISBN 978-3-030-03265-4

£ 99,99 | CHF 132,50 | 111,99 € |
123,19 € (A) | 119,83 € (D)

Available

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Standard (0)

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Physics : Astronomy, Observations and Techniques

Wilson, T.L., Rohlfs, K., Hüttemeister, S.

Tools of Radio Astronomy - Set

6th Edition with Problems and Solutions Book

- Presents the 6th edition of a leading textbook on radio astronomy together with the corresponding Problems and Solutions book
- Provides reworked derivations of equations and updates which reflect advances in technology and data reduction algorithms
- Includes treatments of the wider bandwidths in use on by modern radio, mm and sub-mm arrays

This is a set of the two books "Tools of Radio Astronomy, 6th Ed." by T.L.Wilson, K. Rohlfs, S. Hüttemeister and "Tools of Radio Astronomy - Problems and Solutions, 2nd Ed." by T.L. Wilson and S. Hüttemeister. Tools of Radio Astronomy, 6th Ed.: This 6th edition of "Tools of Radio Astronomy", the most used introductory text in radio astronomy, has been revised to reflect the current state of this important branch of astronomy. This includes the use of satellites, low radio frequencies, the millimeter/sub-mm universe, the Cosmic Microwave Background and the increased importance of mm/sub-mm dust emission. Several derivations and presentations of technical aspects of radio astronomy and receivers, such as receiver noise, the Hertz dipole and beam forming have been updated, expanded, re-worked or complemented by alternative derivations. These reflect advances in technology. The wider bandwidths of the Jansky-VLA and long wave arrays such as LOFAR and mm/sub-mm arrays such as ALMA required an expansion of the discussion of interferometers and aperture synthesis. Developments in data reduction algorithms have been included. As a result of the large amount of data collected in the past 20 years, the discussion of solar system radio astronomy, dust emission, and radio supernovae has been revisited. The chapters on spectral line emission have been updated to cover measurements of the neutral hydrogen radiation from the early universe as well as measurements with new facilities. Similarly the discussion of molecules in interstellar space has been expanded to include the molecular and dust emission from protostars and very cold regions. Several worked examples have been added in the areas of fundamental physics, such as pulsars.

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ISBN 978-3-030-03265-4 / BIC: PG / SPRINGER NATURE: SCP22014

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