

Springer

 1st
edition

 2012, LII, 724 p. 109 illus.,
49 illus. in color. With online
files/update.

Printed book

Hardcover

Book w. online files/update

Hardcover

ISBN 978-3-642-27436-7

 £ 109,99 | CHF 153,50 | 129,99 € |
142,99 € (A) | 139,09 € (D)

Available

Discount group

Science (SC)

Product category

Monograph

Series

Astronomy and Planetary Sciences

Other renditions

Softcover

ISBN 978-3-662-50609-7

Physics : Astronomy, Observations and Techniques

Maccone, Claudio

Mathematical SETI

Statistics, Signal Processing, Space Missions

- The first book to include a full mathematical derivation of the Statistical Drake Equation and describe its many applications
- Demonstrates high level mathematical techniques for the solution of a variety of SETI problems
- Describes how use of the Karhunen-Loeve Transform leads to a dramatic improvement in SETI signal processing
- Discusses important topics of current SETI research relating to exoplanet searches and civilizations within the Galaxy

This book introduces the Statistical Drake Equation where, from a simple product of seven positive numbers, the Drake Equation is turned into the product of seven positive random variables. The mathematical consequences of this transformation are demonstrated and it is proven that the new random variable N for the number of communicating civilizations in the Galaxy must follow the lognormal probability distribution when the number of factors in the Drake equation is allowed to increase at will. Mathematical SETI also studies the proposed FOCAL (Fast Outgoing Cyclopean Astronomical Lens) space mission to the nearest Sun Focal Sphere at 550 AU and describes its consequences for future interstellar precursor missions and truly interstellar missions. In addition the author shows how SETI signal processing may be dramatically improved by use of the Karhunen-Loève Transform (KLT) rather than Fast Fourier Transform (FFT). Finally, he describes the efforts made to persuade the United Nations to make the central part of the Moon Far Side a UN-protected zone, in order to preserve the unique radio-noise-free environment for future scientific use.

 Order online at springer.com/booksellers

Springer Nature Customer Service Center GmbH

Customer Service

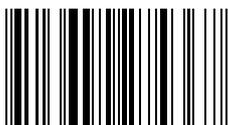
Tiergartenstrasse 15-17

69121 Heidelberg

Germany

T: +49 (0)6221 345-4301

row-booksellers@springernature.com



ISBN 978-3-642-27436-7 / BIC: PG / SPRINGER NATURE: SCP22014

Prices and other details are subject to change without notice. All errors and omissions excepted. Americas: Tax will be added where applicable. Canadian residents please add PST, QST or GST. Please add \$5.00 for shipping one book and \$ 1.00 for each additional book. Outside the US and Canada add \$ 10.00 for first book, \$5.00 for each additional book. If an order cannot be fulfilled within 90 days, payment will be refunded upon request. Prices are payable in US currency or its equivalent.

 Part of **SPRINGER NATURE**