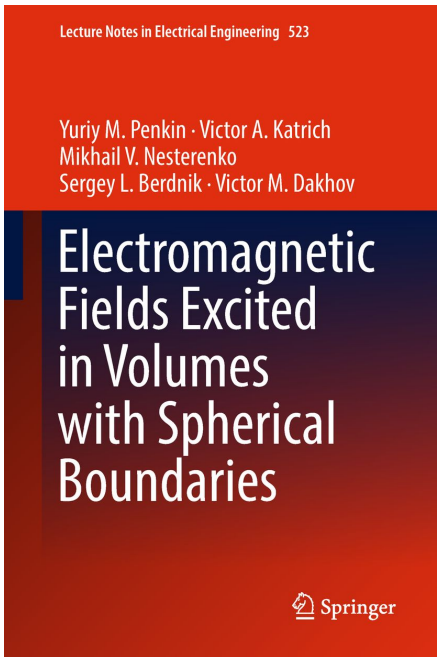

Springer

1st edition

1st ed. 2019, XVII, 197 p. 78 illus., 51 illus. in color.

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Engineering : Microwaves, RF and Optical Engineering

Penkin, Y.M., Katrich, V.A., Nesterenko, M.V., Berdnik, S.L., Dakhov, V.M.

Electromagnetic Fields Excited in Volumes with Spherical Boundaries

- Presents the construction of Green's functions for the Hertz potentials in electrodynamic volumes with spherical boundaries, including those with inhomogeneous radial filling
- Provides the results and their applications clearly and concisely
- Is intended for engineers and researchers, as well as postgraduate and graduate students with an understanding of vector and tensor analysis, and the general theory of electrodynamics
- Shares results that can be directly used for the development of various spherical antennas

This book discusses the problem of electromagnetic wave excitation in spatial regions with spherical boundaries and the accurate mathematical modeling based on numerical and analytical methods to significantly reduce the time required for developing new antenna devices. It particularly focuses on elements and systems on mobile objects of complex shape that are made of new technological materials. The experimental development of such devices and systems is an extremely time-consuming, lengthy, and expensive process. The book is intended for senior and postgraduate students and researchers working in the fields of radiophysics, radio engineering and antenna design. The authors assume that readers understand the basics of vector and tensor analysis, as well as the general theory of electrodynamics. The original results presented can be directly used in the development of spherical antennas and antenna systems for the mobile objects. The book addresses problems concerning the construction of Green's functions for Hertz potentials in electrodynamic volumes with spherical boundaries, and solves these clearly and concisely. It also uses specific examples to analyze areas where the results could potentially be applied.

ISBN 978-3-319-97818-5 / BIC: TJFN / SPRINGER NATURE: SCT24019