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"This book presents advanced analytical models based on Volterra integral equations for electromagnetic wave phenomena in dynamically changing environments in a complete, mathematically rigorous but still very clear way. The analyzed problems are presented hierarchically in a very logical structure, and their analytic solutions are suitably illustrated with highly instructive graphs and drawings. The book may serve indisputably as an indispensable reference for academicians, researchers, and students studying electromagnetic wave phenomena in a variety of wavelength ranges, including optical, terahertz, microwave, and other radiations."

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National Institute of Telecommunications, Poland

"This book comes as a most timely contribution, bringing the collected and systematized knowledge on non-stationary electromagnetic processes in plasma, waveguides, and moving media to the tables of experts working on time-modulated platforms for microwave, photonic, and acoustic devices."

Prof. Sergei A. Tretyakov
Aalto University, Finland

"This book deals with a modern subject in electromagnetics and ably presents a generalized theory of non-stationary electromagnetics. The theory is validated by applying it to several particular cases of time-varying media problems solved earlier by the authors of the book as well as other researchers. The generalization of the theory should lead to the solution of a large range of problems of this developing field."

Prof. Dikshitulu Kalluri
University of Massachusetts Lowell, USA

This book is devoted to the investigations of non-stationary electromagnetic processes. The investigations are undertaken analytically mainly using the Volterra integral equations approach. The book contains a systematic statement of this approach for the investigations of electrodynamics phenomena in the time domain and new results and applications in microwave techniques and photonics. Particular consideration is given to electromagnetic transients in time-varying media and their potential applications. The approach is formulated and electromagnetic phenomena are investigated in detail for a hollow metal waveguide, which contains moving dielectric or plasma-bounded medium, and dielectric waveguides with time-varying medium inside a core.

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