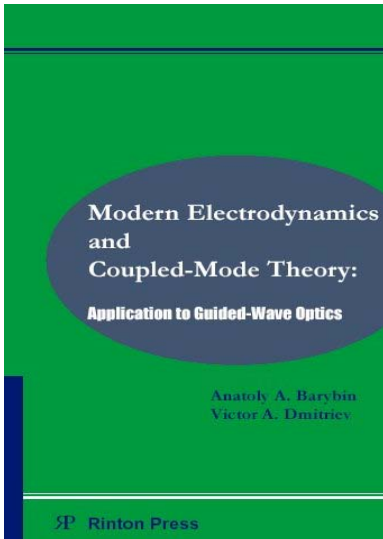


MODERN ELECTRODYNAMICS AND COUPLED-MODE THEORY: APPLICATION TO GUIDED-WAVE OPTICS

Anatoly A. Barybin & Victor A. Dmitriev



Description: This book, distinguishing itself from other books on the same topics, presents an electrodynamics theory that provides a unified self-consistent approach to describe mode excitations and mode couplings, including the optical guided-wave interactions, which occur in various devices of guided-wave optics, integrated optics, acoustooptics, electrooptics, and magnetooptics. Each specific wave interaction turns out to be a special case of the most general coupled-mode equations under certain dielectric perturbation, and the dielectric perturbation tensor can be readily used to calculate the coupling coefficients. The book also presents an approach of group-theoretical analysis to the mode-coupling problems. Such an analysis usually reveals important electromagnetic properties of complex media waveguiding structures without detailed solutions of equations with boundary-values problems associated to those structures. Therefore, this book provides with powerful tools for studying very complicated problems that appear in theoretical and applied electrodynamics, integrated optics, acoustooptics, electrooptics, and magnetooptics, in research and in industrial applications as well.

726 pages, 10x7 inches
Hardcover, June 2002
ISBN 1-58949-007-X
US\$ 98.00

Readership: graduate students, teachers, researchers, engineers in theoretical and applied electrodynamics, integrated optics, acoustooptics, electrooptics, and magnetooptics.

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