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Wave Propagation in the Ionosphere

Resumo de Wave Propagation in the Ionosphere

In this book, the author draws on his broad experience to describe both the theory and the applications of wave propagations. The contents are presented in four parts and the sequence of these parts reflect the development of ionospheric and propagational research in areas such as space research geophysics and communications.

The first part of the book presents an outline of the theory of electromagnetic waves propagating in a cold electron plasma. For reference, vector analysis, dyadics and eigenvalues introduced in this part are presented in the appendices.

Practical aspects of radio wave propagation are the subject of the second part. The typical conditions in different frequency ranges are discussed and the irregular features of the ionospheric structure such as sound and gravity waves are also considered.

Warm plasma and the effects of ions are considered in the third part, which includes a discussion of sound-like waves in electron and ion plasmas. Nonlinear effects and instabilities are described in the fourth part.

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