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Advances in Waveguide Optics: Nonlinearity and Inverse Problems

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Message from the Guest Editor

This Special Issue addresses the most advanced current mathematical approaches and numerical methods in electromagnetic field theory and wave propagation. It presents the application of developed methods and techniques to the analysis of waves in various guiding structures—shielded and open metal–dielectric waveguides of arbitrary cross-section, planar and circular waveguides filled with inhomogeneous dielectrics, metamaterials, chiral media, anisotropic media and layered media with absorption and nonlinear media.

The issue presents new analytical developments and numerical methods for solutions to inverse and ill-posed problems.

The issue is beneficial to a broad spectrum of readers ranging from pure and applied mathematicians in electromagnetic field theory to researchers and engineers who are familiar with mathematics. Further, it is also useful as a supplementary text for upper-level undergraduate students interested in learning more advanced topics of mathematical methods in electromagnetics.



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Special Issue