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Research Topics

- Analysis and design of corner reflector and corner array antennas
- Measurement of complex permittivity of lossy granular dielectrics at microwave frequencies
- Asymptotic and rigorous scattering from cylindrical objects composed of dielectric, conducting, imperfectly conducting, inhomogeneous dielectric, dielectric-loaded conducting material
- Asymptotic, numerical, and rigorous diffraction by a double perfectly conducting wedge with and without edge modifications
- Improved method of moment solution for scattering by large cylindrical conducting cylinders
- Active loading of radiating apertures and reflector antennas
- Inverse scattering by parabolic reflector antennas
- Wave propagation inside circular and conical waveguides with impedance walls
- Radiation characteristics of dielectric resonator antennas loaded by a beam-forming ring
- Analysis and design of cylindrical and planar micro-strip lines with or without dielectric loading
- Mapping of vector fields inside cavities and waveguide
- Software and multimedia development for electromagnetics and microwave education
- Analysis of planar and cylindrical microstrip transmission lines using the method of moments and the finite difference technique
- Finite difference time domain analysis of passive and active microwave devices, dielectric resonators, and compact antennas for personal communications
- Interactions and visualization of electromagnetic waves with the human body using the FDTD technique
- Printed and slot antennas for radars and wireless communication systems
- Sensors for soil moisture and airport noise monitoring systems
- Analysis of the scattering from chiral media and metamaterial-type media
- Iterative multi-region technique for scattering large-scale unconnected objects