Abstracts

Resonant modes of a concentric spherical cavity with conically stratified medium

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An analysis on electromagnetic fields of a cavity formed by two concentric conducting spheres with a conically stratified medium is presented in this paper. Angular transmission formulation and the radial eigenfunction expansion are used to formulate the field components. Boundary matching methods are applied to obtain the characteristic equations containing various infinite series of spherical Hankel functions and Legendre functions of complex order for resonant frequencies. The first two resonant frequencies and field expansion coefficients are determined numerically. The distribution pattern of angular field components and the forms of typical electric field lines and magnetic field lines for the first resonant fields are also indicated.

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