Research of resonant scattering by a structure of two dielectric rings at different angles of incidence of a plane GHz electromagnetic wave

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Resonant scattering on the main magnetic mode by a linear structure consisting of two dielectric rings of an incident linearly polarized GHz electromagnetic wave has been theoretically and experimentally investigated. The rings are arranged one after another along the vector $\boldsymbol{k}$, and the planes of the rings are perpendicular to the vector $\boldsymbol{H}$ of the incident wave. It is shown that at zero angle between the vector $\boldsymbol{k}$ and the plane of the rings at the central point between the rings, at distances between them from 2 to 5 mm, there is no scattering, and when the angle of inclination of the plane of the structure changes relative to the vector $\boldsymbol{k}$, a split scattering spectrum of the main magnetic modes is observed. When the registration point is shifted perpendicular to the plane of the structure to a height of 2 mm above the upper plane of the rings at zero angle between the vector $\boldsymbol{k}$ and the plane of the rings at the point located, the scattering of the main magnetic mode is observed, and when the angle of inclination of the plane of the structure relative to the vector $\boldsymbol{k}$, a split scattering spectrum of the main magnetic mode is observed.