

# Experimental investigations of the microwave electromagnetic waves scattering on the system dielectric ring-plasma

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The resonant scattering on the main magnetic mode of a subwavelength dielectric ring in a system consisting of a glass discharge tube with a low-pressure plasma and a dielectric ring placed on the tube excited by an incident plane electromagnetic wave of the GHz band was studied. It is shown that in the absence of plasma, an intense scattering of the incident electromagnetic wave is observed on the main magnetic mode of the resonant frequency of the ring, which disappears in the presence of plasma in the discharge tube. The value of the plasma frequency in this case is close to the resonant frequency of the dielectric ring. The observed scattering effect of an incident plane electromagnetic wave makes it possible to use this system as a key for controlling the transmission of electromagnetic energy at the frequency of the main magnetic resonance of the dielectric ring.