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Radiation of surface polaritons by an annular beam coaxially enclosing a cylindrical waveguide

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We investigate the radiation of surface polaritons by an annular beam that coaxially encloses a cylindrical waveguide. In the spectral range under consideration the real part of dielectric permittivity for the waveguide is negative. By using the Green tensor, the electric and magnetic fields are found inside and outside the waveguide. The contributions in the fields corresponding to surface polaritons are separated and the corresponding energy fluxes are evaluated in the exterior and interior regions. The energy losses are studied for general dispersion law of dielectric permittivity. The numerical examples are presented for the Drude model of dispersion.

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