Contribution ID: **3** Type: **invited**

Radiation of surface polaritons by a charge circulating inside a dielectric cylindrical waveguide

Tuesday, 10 September 2024 11:15 (30 minutes)

We investigate the features of surface polaritons generated by a charged particle coaxially circulating inside a cylindrical waveguide immersed in a homogeneous medium. The corresponding surface waves are emitted on the eigenmodes of the cylindrical waveguide in the spectral range where the real parts of the dielectric permittivities for the cylinder and surrounding medium have opposite signs. The electric and magnetic fields are found by using the electromagnetic field Green tensor. The radiation fields are separated explicitly and the energy flux for the surface polaritons through the plane perpendicular to the waveguide axis is evaluated. We also discuss the radiation on the eigenmodes
corresponding to the guiding modes of the cylindrical waveguide.

Primary author: SAHARIAN, Aram (Yerevan State University, Yerevan, Armenia)

Co-authors: Prof. GRIGORYAN, L.Sh. (Institute of Applied Problems of Physics, NAS RA); Dr KHACHATRYAN, H.F. (Institute of Applied Problems of Physics, NAS RA)

Presenter: SAHARIAN, Aram (Yerevan State University, Yerevan, Armenia)

Session Classification: Radiation: Generation & Interaction