# Abstracts

## Guided Waves in Moving Dispersive Media Part I: Nonrelativistic Velocities

*H. Berger and J.W.E. Griemsmann. "Guided Waves in Moving Dispersive Media Part I: Nonrelativistic Velocities." 1968 Transactions on Microwave Theory and Techniques 16.1 (Jan. 1968 [T-MTT]): 11-16.*

A theoretical examination is presented of the influence of a dispersive medium on the time-harmonic TE and TM modal field structure of eletromagnetic waves in a cylindrical waveguide of arbitrary cross section when the medium is in relative motion with respect to the waveguide walls. The modal field structure observed both in the reference frame F' attached to the medium, and in the reference frame F attached to the waveguide walls, is determined in closed form. The results presented for the modal fields observed in F are valid when the medium moves with nourelativistic speed v. Contact is made with the standard relativistic discussion of TEM waves in slowly moving dispersive media involving the Fresnel drag coefficient, and it is noted that the customary restrictions on v for numerical accaracy of the results can be inadequate. The theory is applied to two special cases. The nonreciprocal phase shift exhibited by a waveguide filled with moving media is also discussed.

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