RADIO SCIENCE Journal of Research NBS/USNC–URSI
Vol. 69D, No. 1, January 1965

An Invited Abstract*

Nonlinear Propagation of Electromagnetic Waves in Magnetoplasmas. II.

Mahendra S. Sodha and Carl J. Palumbo

Republic Aviation Corporation, Farmingdale, New York

In this communication the authors have investigated the nonlinear propagation of an electromagnetic wave at an arbitrary angle to the direction of the magnetic field in a plasma. The authors have derived an expression for the complex conductivity tensor of a Lorentzian magnetoplasma, which is correct to terms involving the square of the amplitude of the electric vector. This expression, along with the wave equation, has been used to analyze two specific problems, viz, the propagation of an electromagnetic wave in an infinite mangetoplasma and reflection and refraction at the interface of a nonlinear magnetoplasma and a linear isotropic medium.

(Paper 69D1–448)

*The full paper has been published in Can. J. Phys., **42**, 349–363 (1964).