

Abstract Submitted
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Generalized CaseVan Kampen theory for electromagnetic oscillations in a magnetized plasma¹ F. BAIRAKTARIS, K. HIZANIDIS, NTUA, Greece, A. K. RAM, MIT-PSFC — The Case-Van Kampen theory [1,2] is set up to describe electrostatic oscillations in an unmagnetized plasma. Our generalization to electromagnetic oscillations in magnetized plasma is formulated in the relativistic position-momentum phase space of the particles. The relativistic Vlasov equation includes the ambient, homogeneous, magnetic field, and space-time dependent electromagnetic fields that satisfy Maxwells equations. The standard linearization technique leads to an equation for the perturbed distribution function in terms of the electromagnetic fields. The eigenvalues and eigenfunctions are obtained from three integrals each integral being over two different components of the momentum vector. Results connecting phase velocity, frequency, and wave vector will be presented. [1] N. G. Van Kampen, *Physica* **21**, 949 (1955). [2] K. M. Case, *Annals of Physics* **7**, 349 (1959).

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