



Waves and Instabilities

By Demissie, Fekadu

Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Propagation of Waves Through Ultrarelativistic Anisotropic Plasma | Starting from the collisionless relativistic Boltzmann equation, the basic equations and the dispersion relations are derived in a strongly magnetized, collisionless, homogenous, ultrarelativistic and anisotropic plasma. The dispersion relation is analysed both analytically and numerically. From the analysis of the solutions of the dispersion relations, it is found that all existing kinds of MHD waves have in the case of ultrarelativistic plasma definitely different phase velocities as compared to the one from standard theory of linear MHD waves in cold collisionless plasma. Where as, the condition for fire-house instability remains the same. On the other hand, from the numerical analysis, polar plots of the phase velocities of the different wave modes for different cases are also drawn. Beside this, we came across that the extension of the 2D problems to 3D, results in the occurrence of an additional Alfvén wave modes in 3D problems. | Format: Paperback | Language/Sprache: english | 114 gr | 220x150x4 mm | 64 pp.



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