

Abstract Submitted
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Microwave gas breakdown instabilities in the presence of external magnetic field MOHAMMAD GHORBANALILU, Physic Department of Azarbaijan University of Tarbiat Moallem, Tabriz, Iran, BABAK SHOKRI, Physics Dept. and Laser-Plasma Research Inst. of Shahid Beheshti University — The electron distribution function (EDF) formed in the interaction of high-frequency microwave (MW) pulsed fields with a rarefied neutral gas is obtained in the presence of the static magnetic field. It is expected that this system undergoes the various instabilities because of the anisotropic structure of the EDF. Making use of the EDF the dielectric permittivity tensor is derived and the general dispersion relation is found in the adiabatic approximation. Analyzing the dispersion relation in the weakly and strongly magnetized regimes for propagation along and across the magnetic field it is shown that the plasma is unstable in the both regimes.

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