

Abstract Submitted  
for the GEC10 Meeting of  
The American Physical Society

**Numerical analyzing of unstable modes propagating along the magnetic field on magnetized microwave produced plasmas** MOHAMMAD GHORBANALILU, Azarbaijan University of Tarbiat Moallem, Tabriz, Iran — The stability of plasma produced under the interaction of high frequency Microwave (MW) field with a dilute neutral gas is investigated in the present of axially external magnetic field. The electromagnetic waves propagating along the external magnetic field are considered for short and long wavelength limits. It is shown that the unstable Weibel mode grew under the competition between MW and external magnetic fields. However, increasing the MW field amplitude increased Weibel instability growth rate, instability disappeared by sufficiently strong magnetic field. We found that in contrast to the non-magnetized case that Weibel mode was non-oscillate, this mode oscillated very slowly on time on the magnetized Microwave Produced Plasma (MWPP). In addition, the numerical calculation indicated that the new type of unstable mode is generated during plasma production. This type of instability oscillated and grew very fast on time, compared to the Weibel instability.

Mohammad Ghorbanalilu  
Azarbaijan University of Tarbiat Moallem, Tabriz, Iran

Date submitted: 11 Jun 2010

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