## عنوان مقاله:

Low and high frequency instabilities in an explosion-generatedplasma and possibility of wave triplet

## محل انتشار:

فصلنامه فیزیک تئوری و کاربردی, دوره 9, شماره 1 (سال: 1394)

تعداد صفحات اصل مقاله: 6

## نویسندگان:

O.P Malik - *Department of ECE, Al-Falah University, Dhauj, Faridabad, Haryana, India*

Sukhmander Singh - *Motilal Nehru College, South Campus, Delhi University, New Delhi ۱۱۰ ۰۲۱, India*

Hitendra K Malik - *PWAPA Laboratory, Department of Physics, Indian Institute of Technology Delhi, New Delhi ۱۱۰ ۰۱۶, India*

A Kumar - *Department of Applied Sciences, Al-Falah University, Dhauj, Faridabad, Haryana, India*

## خلاصه مقاله:

An explosion-generated-plasma is explored forlow and high frequency instabilities by taking into accountthe drift of all the plasma species together with the dustparticles which are charged. The possibility of wave tripletis also discussed based on the solution of dispersionequation and synchronism conditions. High frequencyinstability (HFI) and low frequency instability (LFI) arefound to occur in this system. LFI grows faster with thehigher concentration of dust particles, whereas its growthrate goes down if the mass of the dust is higher. The ionand electron temperatures affect its growth in oppositemanner and the electron temperature causes this instabilityto grow. In addition to the instabilities, a simple wave isalso observed to propagate, whose velocity is larger forlarger wave number, smaller mass of the dust and higherion temperature.

## کلمات کلیدی:

Dust particles Explosion-generated-plasma Dispersion equation Low frequency instability High frequency instability