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EM Wave Attenuation Characteristics in Uniform and Non-Uniform Space Dusty Plasma

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Polar summer mesopause regions belongs to weakly ionized dusty plasma, signal may be affected when electromagnetic waves transfer in the region, so attenuation characteristics need to be studied deeply [1-5]. Here the uniform and non-uniform dusty plasma simulation model of electromagnetic wave is established by simulation software. The results show the attenuation characteristics of electromagnetic wave is different with the increment of electron density in uniform and non-uniform dusty plasma; the attenuation of electromagnetic wave is less with the increment of frequency. One attenuation characteristics changing with electron density when electromagnetic wave vertical incidence in uniform and non-uniform dusty plasma are shown in Figure 1. At the same time the attenuation of electromagnetic wave with the change of the incident angle also is studied and some new characters are obtained.

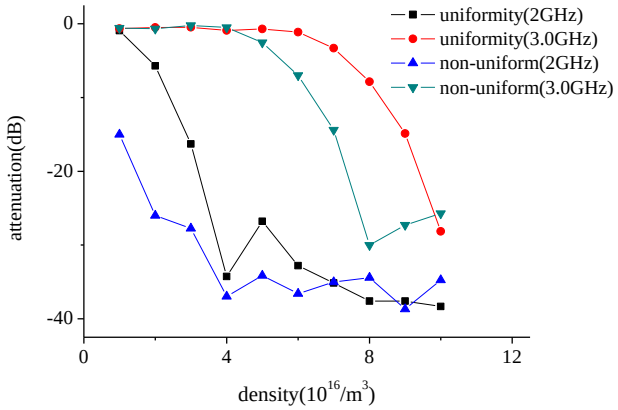

Fig 1. Attenuation characteristics of vertical incidence changing with electron density in uniform and non-uniform space dusty plasma

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