# Abstract

Recently, dusty plasmas have been the focus of attention because of their wide applications to space and laboratory plasmas. Dust particles present in the system can modify the propagation characteristics of waves significantly. Novel properties introduced by charged particulates in a plasma medium and how they influence excitation and propagation of waves are discussed in various topics. Such a medium, commonly known as dusty plasma, is generated in the near Earth environment by dust and other debris of meteoric origin and exhausts and effluents from space platforms. A novel feature of dusty plasma is that the charge to mass ratio can become a dynamical variable and represent an additional degree of freedom unavailable to a classical plasma. Charged dust particles in a plasma introduce unique potential structures and significantly alter the short and long range forces which can affect the short and long range ordering of the dust grains. More interestingly, large amount of charges on dust grains can enable the average potential energy of the dust component to exceed its average kinetic energy giving rise to a strongly coupled plasma component with liquid-like and solid-like characteristics. These aspects can introduce new types of plasma oscillations or significantly modify the existing ones. Selected theoretical and experimental studies of low frequency electrostatic waves in weakly and strongly coupled plasmas containing negatively charged dust grains are used to illustrate the unique oscillations in a dusty plasma medium. The presence of charged dust is shown to modify the properties of ion-acoustic waves and electrostatic ion-cyclotron waves through the quasineutrality condition even though the dust grains do not participate in the wave dynamics. If the dust dynamics is included in the analysis, new "dust modes" appear. In this topic we try to find out what will be the effect on stability if we consider the drift of dust particles under the influence of an applied magnetic field.