

A new type of hybrid discharge is experimentally investigated in this work. A helicon source and an electron cyclotron resonance (ECR) source were combined to produce plasma. As a preliminary study of this type of plasma, the optical emission spectroscopy (OES) method was used to obtain values of electron temperature and density under a series of typical conditions. Generally, it was observed that the electron temperature decreases and the electron density increases as the pressure increased. When increasing the applied power at a certain pressure, the average electron density at certain positions in the discharge does not increase significantly possibly due to the high degree of neutral depletion. Electron temperature increased with power in the hybrid mode. Possible mechanisms of these preliminary observations are discussed.