

Injection of solar wind electrons into the plasma void and associated magnetic fluctuations in the ELF range

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Generation mechanism of the magnetic fluctuations in the ELF range detected by MAP-LMAG magnetometer onboard Kaguya in the deepest wake behind the moon associated with the type-II entry protons is studied. Most of the waves were detected on the magnetic field lines which were not connected with the lunar surface, along which the solar wind electrons were injected into the wake. The waves had compressional components of field variation, suggesting that the direction of the wave number vector was oblique with respect to the background magnetic field. Interaction between the field-aligned hot electron beam and oblique whistler and electrostatic waves is considered.

Keywords: electron beam, magnetic field variation, lunar wake, type II entry protons, whistler mode wave, oblique propagation