Laboratory experiment of the solar wind interaction with magnetic dipole fields on the lunar surface

J. Han, L. Yeo, Z. Ulibarri, X. Wang, T. Munsat, M. Horanyi

Solar wind interaction on regions of crustal magnetic anomalies has yet been fully understood. A detailed understanding of these lunar magnetic anomalies is important in future lunar explorations and understanding plasma dynamic with the presence of magnetic field. This paper presents the result of high energy flowing plasma interacting with a magnetic dipole field above an insulating surface. A positive potential was observed near the dipole lobe regions. However, the magnitude of such surface potentials is much smaller comparing to the ion flow energy. This suggests the existence of electric field above the surface caused by charge separation, which deflects part of the ions from reaching it.