



Anomalous ion acceleration around the moon: Initial observation of MAP-PACE on KAGUYA(SELENE)

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We report the ion acceleration around the moon observed by the MAP instrument on-board KAGUYA (SELENE). KAGUYA is a Japanese lunar orbiter that was launched on 14 September 2007 and now is at ~ 100 km altitude. MAP consists of LMAG for the magnetic field observation and PACE for the plasma. PACE can measure the full three-dimensional distribution function of low energy electrons below 15 keV and ions below 28 keV. We investigated MAP data to find clear energy dispersion of ions near the terminator of the moon. The maximum energy of the ions is much higher than the kinetic energy of the solar wind ions, which means occurrence of remarkable ion acceleration around the moon. Primary candidates for the acceleration mechanism are (1) electric field induced by the solar wind and (2) electric field near the terminator of the lunar surface. We will also discuss possible sources of the observed high-energy ions.