S001-09
A 会場 ：11/4　PM2 （15:45-18:15）
16:20〜16:35

ピックアップイオンを含む斜め衝撃波の運動論的 2 次元構造

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2D kinetic structure of PUI mediated oblique shock

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It is believed that pickup ions (PUIs) play crucial roles in the phenomena occurring in the heliospheric boundary region, since its relative density reaches dozens of percent. We previously showed that PUIs significantly alter the kinetic structure of a perpendicular heliospheric termination shock. It has been recognized that the shock angle of the termination shock is variable depending on longitude and latitude. Here, the shock angle is defined as the angle between the shock normal and upstream magnetic field vector. For instance, while the shock angle near the nose of the heliosphere is close to perpendicular, that in the region of flank of the heliosphere is thought to be oblique. Researchers think that the oblique termination shock may be an efficient accelerator of PUIs. Particle acceleration at a shock is closely linked with the kinetic structure of the shock. So far, the kinetic structure of a PUI mediated oblique shock has been seldom investigated numerically except for one-dimensional case. For an oblique shock, a back streaming plasma escape away from the shock along upstream magnetic field so that large system size in the shock normal direction is necessary. Because of this, higher dimensional simulations were difficult previously. In this study we perform two-dimensional full particle simulation of PUI mediated oblique shock by using the supercomputer Fugaku. The shock angle is 50 deg, Alfven Mach number ˜5.4, upstream electron beta 0.25, solar wind ion temperature is the same as electron temperature, and relative PUI density is 25%, respectively. Complex multiscale structures reproduced in the simulation are discussed with particularly focusing the role of the PUIs.