

# **AN INITIAL RESULT OF 3D FULL PARTICLE SIMULATION OF QUASI-PERPENDICULAR SHOCK**

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Recent progress of computational power enables us to perform really macro-scale three-dimensional situations with full particle codes. Here, we will report results of a three-dimensional simulation of a quasi-perpendicular shock carried out on the JAXA's new super-computer facility. The simulation parameters were selected to simulate a Cluster observational result reported by Seki et al. (2009). The full mass ratio  $M/m=1840$  was taken for this simulation, and almost one ion inertia length square could be allocated for the simulation. In this simulation, no self-shock-reformation process as can be seen in previous one-dimensional simulations is found, and, in contrast, quite complicated wave activity is found at the shock foot region. Strong shock electron acceleration is also observed and the obtained spectrum is similar to the Geotail observation reported by Oka et al. (2006). We will discuss the electron acceleration mechanism and its relation with the complex behavior of the shock transition region.

quasi-perpendicular shock, electron acceleration, full particle simulation

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