S001-P17
ポスター 3 ：11/6　AM1/AM2 （9:00-12:30）

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Particle Simulations on Characteristics of Electric Field Sensors applied to the Interferometry technique in Space Plasmas

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One of the most important parameters of plasma waves is phase velocities. The interferometry technique is one of the methods to obtain phase velocities in space based on satellite observations. The method utilized for a single satellite measurement uses electric field signals picked up by two individual monopole electric field sensors. From the time difference and the distance between the observation points, the phase velocity can be calculated. The problem here is the uncertainty in the distance, because of the length of sensors is not negligible relative to wavelengths. In this study, we use the full-PIC simulation to evaluate the interferometry technique and determine the equivalent length L_{eq}. A 3D simulation model is used in this paper. Three objects were used to realize the interferometry technique. Two of them were placed on the conductor rod as sensors and the last one was placed in the center of the conductor rod as a satellite.

The figure shows the time variation of $_{Leq}$ in the dependence of the gap between the end of a sensor and a satellite body as shown in the figure. The dashed lines in the figure indicate the sensor's center-to-center distance. The figure shows $_{Leq}$ is almost equal to the sensor's center-to-center distance when the gap is equal to 8. On the other hand, when the gap is small, it is found to be shorter than the sensor center-to-center distance. We found that this stem from the changes in the potential structures of the Langmuir wave around the satellite because of the effect of the satellite body.