**R006-52**
**Zoom meeting B ：11/4 AM2 (10:45-12:30)**
**12:15〜12:30**

# Evaluation of the errors in analyzing energetic electron flux data obtained by Arase/HEP

#Tomoaki Hori[1)],Takefumi Mitani[2)],Takeshi Takashima[3)],Yoshizumi Miyoshi[1)],Iku Shinohara[4)]
([1]ISEE, Nagoya Univ.,([2]ISAS/JAXA,([3]ISAS, JAXA,([4]ISAS/JAXA

The evaluation of measured flux errors is important for detailed quantitative analysis of energetic electron fluxes in the inner magnetosphere. The previous study developed an error estimation method for the energetic electron flux measured by the high-energy electron experiments (HEP) onboard the Arase satellite. The developed method is based on counting statistics of the raw electron count measurement, considering the error propagation due to the count-spectrum deconvolution matrices used for the count-to-flux conversion. In this study we extend the previous work to assess the full range of errors accompanying the actual analysis of directional electron fluxes, such as time-averaged pitch-angle-sorted flux. Our preliminary analysis shows that the flux error due to counting statistics is often comparable to the flux value in the differential flux range less than $10^4$/s/sr/keV/cm$^2$, indicating that a flux value at an individual directional channel sampled in a single data accumulation time (˜0.5 s) is well within its uncertainty level. Averaging them over a 15-deg pitch angle bin for a spin period (˜8 s) improves the flux-to-error ratio typically by a factor of 2-4, allowing for a quantitative analysis of a flux difference of such a factor level. Accordingly a further time integration over several spin periods is needed to lower the uncertainty level to an order smaller than its flux value. The flux-to-error ratio becomes worse (smaller) when the satellite is exposed to fairly high fluxes of MeV electrons, for instance, in the radiation belt proper; a much longer integration time is necessary for achieving the same level of flux uncertainty.