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ポスター 2 : 11/5 AM1/AM2 (9:00-12:30)

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Causalities of occurrence features of Io-related Jupiter's radio emission : Examination of non-uniform energy supply from Io

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The following question; 'How Jupiter's auroral radio emissions are generated?' has been long years of subjects. Especially the Io-related auroral emission component called Io-DAM has shown mysterious nature of characteristic occurrence probability, that is, the occurrence strongly depends on both Io's positional angle and Jupiter's magnetic longitude to an observer. We have investigated this subject based on numerical calculations with a 3D ray-tracing using several kinds of magnetic field and plasma density models including a recently proposed magnetic field model based on the JUNO in-situ explorations near Jupiter. The calculation results show that the new magnetic field model gives more natural explanations for the observed occurrence probabilities, however a hypothesis of some special energy transportations, that is, non-uniform energy supply from Io to the Io-DAM source region, is required to restrict radio emissions to be solely Io-DAM emissions. We have reexamined whether this hypothesis is really needed based on both further numerical calculations including the delay of energy transportation from Io to the Io-DAM source regions and analyses of observation results for Io foot print auroras. In the presentation, we will introduce this numerical and observational approach precisely and discuss necessity of the 'special energy transportation'.