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ポスター 2 : 11/5 AM1/AM2 (9:00-12:30)

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Test particle simulation of electron – water molecule ionizations around Enceladus: energy loss of 1keV electrons

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We have examined energy loss of 1 keV electrons through ionization around Enceladus by using a test particle simulation. Saturn's inner magnetosphere is dominated by water group neutrals (H₂O, OH, and O) originated from Enceladus. Previous studies suggested that these neutrals are seems to contribute to loss processes of plasma in the inner magnetosphere. Tadokoro and Katoh [2014] focused on the loss process of 1 keV electron through the elastic collision with neutral H₂O around Enceladus. With regard to above several hundred eV, ionization cross section for electron electron-H₂O collision is greater than elastic collision cross section. We focus on 1keV electron energy loss by the ionization with neutral H₂O in this study. Conducting one dimensional test-particle simulation, we calculate the electron ionization collision. We use a Monte Carlo method to calculate collision. We show the preliminary result of the 1keV electron energy loss due to ionization process.