[EE] Evening Poster | P (Space and Planetary Sciences) | P-PS Planetary Sciences

[P-PS01]Outer Solar System Exploration Today, and Tomorrow

convener:Jun Kimura(Osaka University), Yasumasa Kasaba(Dep. Geophysics Graduate School of Science Tohoku University), Steven Vance(Jet Propulsion Laboratory, Caltech, 共同), Kunio M. Sayanagi (Hampton University)

Mon. May 21, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

The giant planets provide many keys to understanding planetary processes. They play an important role in shaping our solar system, and the physical and chemical processes they harbor also provide a unique opportunity to study the phenomena relevant for studying
Earth and other planets, including exoplanetary systems. In this session, we discuss a wide range of topics encompassing the giant planets and their moons, including their origins, interiors, atmospheres, compositions, surface features, and electromagnetic fields. To advocate for current and future outer planets exploration (Cassini, Juno, New Horizons, JUICE, and beyond), we also call for discussions on future missions to explore giant planet systems, including how to develop better international cooperation. Discussion in this latter category will include progress in developing a solar sail mission concept for observing the Jupiter system and its trojan asteroids.

[PPS01-P06]Accretion of Vertically Stirred Small Bodies in the Protoplanetary Disk onto Circum-Planetary Disks

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Keywords:giant planets, satellites

High-resolution hydrodynamic simulations show that most of gas accretion onto circumplanetary disks occurs nearly vertically toward the disk surface from high altitude. For better understanding of the formation of giant planets and their satellites, we examine accretion of solid bodies vertically distributed in the protoplanetary disk onto the circumplanetary disk under the influence of such accreting gas flow. We use the distributions of density and velocity of the gas obtained by hydrodynamic simulation in calculating gas drag and integrate orbits of solid particles initially placed above the mid-plane of the protoplanetary disk. We find that small particles that cannot accrete onto the circumplanetary disk when they are initially confined in the mid-plane can accrete with the help of the vertically accreting gas. Accretion rates of small particles depend on their vertical scale-height in the protoplanetary disk. Our results indicate that vertical stirring of particles in the protoplanetary disks would be important for the supply of solid particles onto circumplanetary disks.

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