

S001-38

A 会場 : 11/5 PM2 (15:45-18:15)

16:55~17:20

MAVEN 衛星による火星プラズマダイナミクスの観測と今後の展望

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MAVEN Observations of Plasma Dynamics at Mars and Future Directions

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As Mars lacks an intrinsic global magnetic field of internal dynamo origin, the upper atmosphere of Mars interacts directly with the solar wind. Consequently, the near Mars space provides a unique plasma environment characterized by (i) small spatial dimensions of the entire interaction region, (ii) multi-component plasmas consisting of a mixture of plasma of solar wind origin and heavy ions and photoelectrons of ionospheric origin, (iii) complex magnetic field morphology and topology generated by contribution from the interplanetary magnetic field and crustal magnetization of Mars, and (iv) a wealth of dynamic plasma phenomena driven by the ever-changing upstream solar wind and rotation of the crustal magnetic fields with the planetary body.

Since the orbit insertion in 2014, the MAVEN spacecraft has been obtaining high quality data with its comprehensive plasma package. The simultaneous measurements of charged particles and fields by MAVEN have greatly advanced our understanding of the plasma environment and aeronomy of Mars.

In this talk, I review recent advances in our understanding of the plasma dynamics at Mars with a particular focus on MAVEN observations. I first provide a brief overview of the Martian plasma environment, followed by a series of topical reviews on recent MAVEN observations of plasma processes such as magnetic reconnection and wave-particle interaction. I conclude with a summary of current understanding and discussion on future directions.