



3rd Asia-Pacific Conference on Plasma Physics, 4-8,11.2019, Hefei, China

MAVEN Observations of Low Frequency Magnetosonic Wave Evolutions at Mars

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Observations from MAVEN magnetometer and plasma detector revealed a serial of small-amplitude quasi-monochromatic waves upstream of the Martian bow shock. Properties of the waves show that they are magnetosonic waves having a frequency near the local proton gyrofrequency presented in the solar wind. Subsequently, wave steepening processes are observed when they are convected to Mars as the anti-directional ion fluxes increasing. The steepening structures are periodic and have similar properties to the waves. These results show the observed evidence on the nonlinear evolution of waves in space plasmas.

References

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Note: Abstract should be in 1 page.