



First observation of lion roar-like emissions in Saturn's magnetosheath

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Electromagnetic whistler mode waves known as "lion roars" have been reported by many missions inside the terrestrial magnetosheath. We show the observation of similar intense emissions in Saturn's magnetosheath as detected by the Cassini spacecraft. The emissions were observed inside the dawn sector (MLT~0730) of the magnetosheath over a time period of nine hours before the satellite crossed the bow shock and entered the solar wind. The emissions were narrow-banded with a typical frequency of about 15 Hz well below the local electron cyclotron frequency ($f_{ce} \sim 100$ Hz). Using the minimum variance analysis method, we show that the waves are right hand circularly polarized and propagate at small wave normal angles with respect to the ambient magnetic field. Here, for the first time, we report the evidence of lion roar-like emissions in Saturn's magnetosheath which represents a new and unique parameter regime.