



## **Cluster observations of diffuse ions and circularly polarized ULF waves in the terrestrial foreshock**

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Cluster multipoint observations of circularly polarized ULF waves in the terrestrial foreshock are presented. The waves are shown to be right-hand polarized in the spacecraft frame, as opposed to the majority of waves which are observed to be left-handed in the spacecraft frame, and have a characteristic period of 10s. Previous case studies have shown these waves to be intrinsically left handed, driven by the left hand resonant ion-ion beam instability. Observations of the associated ion distributions are presented, indicating the existence of diffuse distributions. The data are compared to theoretical studies, and used to test various theoretical predictions.