

Abstract Submitted
for the TSF06 Meeting of
The American Physical Society

Generation Mechanisms of S-Bursts Observed from the FAST Satellite: Data and Simulation Comparison¹ YI-JIUN SU, SAMUEL JONES, University of Texas at Arlington, ROBERT ERGUN, FRAN BAGENAL, SCOTT PARKER, University of Colorado at Boulder — Measurements of S-bursts in decametric radio emissions from the Jovian ionosphere comprise less than 10% of the total observations. Electron acceleration or modulation may provide the physical mechanism that transfers energy from the Alfvén wave to the S-burst. The modulated electron fluxes, in turn, may generate or modulate the generation of the S-burst emissions. The most successful explanation proposed for the generation radio emission from magnetized planets is the electron cyclotron maser in which radiation excited near the local electron cyclotron frequency is amplified through a gyroresonant interaction. Two types of electron cyclotron maser have been suggested: loss-cone maser due to the magnetic mirror and shell maser due to the parallel electric field in an anti-planetward current region. The first Earth-based S-burst observation was found to be associated with Alfvén waves and electron acceleration signatures. In this presentation, we will suggest that both loss-cone and shell electron distributions can be generated in a dynamic region associated with propagating Alfvén waves.

¹This research is supported by NASA/SR&T and NSF/CAREER grants to the University of Texas at Arlington.

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Date submitted: 12 Sep 2006

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