

A decay instability of Alfvén waves in the solar wind

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Several damping processes of Alfvén waves are well-known such as mode conversion due to the inhomogeneity of plasma, generation of compressive waves due to the ponderomotive force and the decay instability. Although a number of MHD simulations of Alfvén waves in the solar wind have been performed, it is still unclear what processes could dominantly contribute to the damping of Alfvén waves. To investigate the damping processes of Alfvén waves, we perform a 1-dimensional MHD simulation in a spherical geometry by using a simple solar wind model. We will give quantitative explanation of the damping processes of Alfvén waves from the results of simulations.