

## Study of Ion Beam Instability for the case of the Ion Pick-up Process

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Ion beam instabilities have been studied for the case of the ion pick-up process in the coma regions of Halley comet where the cometary ion beams are generated due to the ionization of neutral gases in the frame of the solar wind plasma.

We studied the plasma instability based on a linear theory to evaluate the spatial and temporal scale of the plasma instability in a flame of solar wind protons and cometary oxygen beam. The dispersion relation under the present beam type instability shows unstable wave. Wave length of this wave is  $78 V_A/W_p$ , which is consistent with waves excited in early stage of simulation.