

Abstract Submitted  
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**Two-stream instability with time-dependent drift velocity**<sup>1</sup> HONG QIN, RONALD DAVIDSON, Princeton University — The classical two-stream instability driven by a constant relative drift velocity between two plasma components is extended to the case with time-dependent drift velocity. For periodic oscillating relative velocity, the linear dynamics can be characterized by a one-period map from which the growth rate of the perturbation can be rigorously defined and calculated. Using this tool, we are able to obtain a comprehensive picture of the linear two-stream stability driven by a general time-dependent drift velocity. Stability diagrams for the oscillating two-stream instability are presented over a large region of parameter space. It is shown that the maximum growth rate for the classical two-stream instability can be significantly reduced by adding an oscillatory component to the relative drift velocity.

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