Abstract Submitted
for the DFD05 Meeting of
The American Physical Society

Two Types of Linear Theories for Atomizing Liquids S.P. LIN, MAE Dept. Clarkson University — The onset of breakup of liquid jets or sheets is commonly predicted by determining how the infinitesimal disturbance grows with time. This theory is usually called temporal theory. Amore recently developed theory predicts how the disturbance evolves in space and time. The latter theory is termed spatio-temporal theory. This article demonstrates how the temporal theory may mis-predict the nature of the onset of instability. A very important type of instability called absolute instability also instability also escaped totally the prediction of the temporal theory. The mis-prediction and the incompleteness of the temporal theory is demonstrated by use of an example of sheet breakup preceding the atomization.

S.P. Lin
MAE Dept. Clarkson University

Date submitted: 03 Aug 2005 Electronic form version 1.4