

Abstract Submitted  
for the DFD05 Meeting of  
The American Physical Society

**Asymptotic behavior of the Rayleigh–Taylor instability** LAURENT DUCHEMIN, IRPHE, CHRISTOPHE JOSSERAND, LMM, PAUL CLAVIN, IRPHE — We investigate long time numerical simulations of the inviscid Rayleigh–Taylor instability at Atwood number one using a boundary integral method. We are able to attain the asymptotic behavior for the spikes predicted by Clavin & Williams for which we give a simplified demonstration. In particular we observe that the spike’s curvature evolves like  $t^3$  while the overshoot in acceleration shows a good agreement with the suggested  $1/t^5$  law. Moreover, we obtain consistent results for the prefactor coefficients of the asymptotic laws. Eventually we exhibit the self-similar behavior of the interface profile near the spike.

Laurent Duchemin  
IRPHE

Date submitted: 03 Aug 2005

Electronic form version 1.4