

Abstract Submitted
for the DFD06 Meeting of
The American Physical Society

Scaling laws in large scale simulations of the Saffman-Taylor instability¹ PETRI FAST, Lawrence Livermore National Laboratory — We present new large scale simulations of the Saffman-Taylor instability driven by a constant massflux. In contrast to viscous fingering driven by a constant *pressure jump*, we observe at late time simultaneous ramification of the fingers and coarsening of the “fjords.” This may explain the new asymptotic scaling regime where the interface dynamics is described by a power-law relation for a measure of interfacial stretching vs. time. We present detailed comparisons with experimental data from the literature.

¹This work was performed under the auspices of the U.S. Department of Energy by University of California Lawrence Livermore National Laboratory under contract No. W-7405-Eng-48.

Petri Fast
Lawrence Livermore National Laboratory

Date submitted: 06 Aug 2006

Electronic form version 1.4