

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**Self-Sustained Front Propagation in Disordered Flow** SEVERINE ATIS, HAROLD AURADOU, CNRS, DOMINIQUE SALIN, UPMC, LAURENT TALON, CNRS — We generate propagative fronts resulting from a balance between molecular diffusion and non-linear chemical reaction. These fronts behave as solitary waves with a constant velocity and a stationary concentration profile. The interaction between this self-sustained system and a disordered flow leads to complex structures formation. We have performed experiments of the front propagation over a wide range of stochastic flow rates, in porous media. We have determined the structure and the velocity distribution measured along the front. The concentration profile displays salient spatial features such as scaling laws and pattern formation.

Dominique Salin  
UPMC

Date submitted: 15 Nov 2011

Electronic form version 1.4