Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Crack branching and viscous fingering at nanoscale in brittle material DEEDER AURONGZEB, University of Maryland, James A. Clark School of Engineering, College Park, MD. — Cracked surfaces of soda lime glass and single crystal silicon are studied using atomic force microscopy simply by breaking them with impulsive force. We find traces of cavities and reorganized surface structures in both surfaces. At micron scale fractured glass surface exhibits viscous fingering and fractured silicon surface exhibit nanoscale crack branching showing two materials responds to sudden fracture differently. Crack branched surface of Si shows unusually low self –affine exponent and faceted nanoscale organized islands.

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Date submitted: 16 Dec 2008 Electronic form version 1.4