Abstract Submitted
for the DFD05 Meeting of
The American Physical Society

The 'beating heart': spontaneous oscillations of a sessile lens ROMAN STOCKER, Civil and Environmental Engineering - MIT, JOHN BUSH, Department of Mathematics - MIT — When an oil drop is emplaced on a water surface, it takes the form of a sessile lens. When the oil contains water-insoluble surfactant, the lens radius may oscillate in a quasi-periodic fashion; when viewed from above, the sessile lens resembles a beating heart. We here elucidate the subtle mechanism responsible for this striking flow structure by presenting the results of our combined experimental and theoretical investigation.

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Date submitted: 12 Aug 2005 Electronic form version 1.4