

**Meeting:** 1000, Albuquerque, New Mexico, SS 9A, Special Session on Mathematical Methods in Turbulence

1000-76-195            **Misha Chertkov\*** ([chertkov@lanl.gov](mailto:chertkov@lanl.gov)), T-13, Theoretical Division, LANL, MS B231, Los Alamos, NM 87545. *Effects of surface tension on immiscible Rayleigh-Taylor turbulence.*

We present phenomenology describing internal structure of turbulent zone produced in result of acceleration push of heavy fluid into light one, provided the fluids are immiscible. One finds that Kolmogorov cascade is realized within an extending with time range of scales in between mixing zone width,  $L \propto t^2$ , and viscous scale,  $\eta \propto t^{-1/4}$ . Surface tension effects lead to formation of emulsion-like state. Density fluctuations on scales larger than typical drop size  $l$  are governed by Obukhov-Corrsin cascade. If  $l \gg \eta$ , a wave energy cascade, related to capillary waves propagating along the drop's surfaces, is formed downscales from  $l$ ,  $l \propto t^{-2/5}$ . (Received August 24, 2004)