

Abstract Submitted
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The second turbulence and the first galaxies GIBSON CARL, University of California at San Diego — The first turbulence was the strongly exothermic turbulent combustion that produced the big bang (1). Strong force freeze-out by quark-gluon-viscous forces damped the turbulence and inflated space (2). The second turbulence occurred in the plasma epoch, triggered by the expansion of space and gravitational fragmentation of the H-He plasma into proto-supercluster-voids. Proto-galaxies formed in chains just before the transition to gas, reflecting viscous straining along vortex lines, where maximum positive rate-of-strain plus the positive straining of the expanding universe stretched and separated proto-galaxies caused by gravity and maximum negative rate-of-strain compression opposing universe expansion. The dim most distant galaxies revealed by the Hubble Space Telescope (figure) are in chains of clumps (3) with ~ 1500 times more dark matter (planets) than luminous matter (stars). See figure at <http://www-acs.ucsd.edu/~ir118>

1. Gibson, C. H., “The First Turbulent Combustion,” *Combustion Science and Technology*, 177: 1049–1071, 2005
2. Gibson, C. H., “The first turbulence and the first fossil turbulence.” *Flow Turbulence and Combustion*, 72, 161–179, 2004
3. Elmegreen, D. M. et al., “Chain galaxies . . . ”, *ApJ* 603:75, 2004

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