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


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Date submitted: 01 Sep 2005
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