

Celebrating 20 years of Swift Discoveries



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Extended Mapping the Universe with Gamma-Ray Bursts

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Recently we searched for large scale structures in the Universe using 542 GRBs with known redshifts. In our published paper we checked for over densities on different scales. In our new work, we extend our search to larger scales. We found several deviations, among them a group of four GRBs and an extended volume of the so called Hercules–Corona Borealis Great Wall (HCBGW). The estimated 2 Gpc size of the HCBGW is almost an order of magnitude larger than the 300 Mpc size that would be accepted if the cosmological principle (CP) is valid. Consequently, if the HCBGW is a gravitationally bound object, its existence violates the CP. However, if the HCBGW is a large-scale time/space fluctuation of the GRB birth rate, then its existence does not necessarily contradict CP.

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