

Testing the current standard cosmology and directions towards a new model

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The current cosmological model rests on Einstein's theory of general relativity. In order for it to be consistent with large-scale structure data, the existence of not understood but cosmologically relevant physical processes need to be postulated: inflation, cold dark matter particles and dark energy. Each of these is highly problematical, but assuming the resulting mathematical "LCDM" description is a representation of cosmological reality, this representation can be tested in a different regime, namely on the scales of the Local Volume of galaxies down to individual galaxies. It is found that each test which has been designed shows the LCDM description to fail such that the LCDM model needs to be discarded. The data suggest an alternative cosmological model.