Progress on Old and New Themes in cosmology (PONT) 2014



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Cosmic variance on the local expansion rate.

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The local expansion rate as observed by for example the HST, is not the same as the global expansion rate in the FLRW metric. In a standard LCDM universe, the effect of local dynamics on the apparent expansion rate turns out to be significant, especially compared to the tight error bars in today's precision cosmology. I show how the linear power spectrum of perturbations gives a straightforward prediction on the variance of the gravitational potential of the observer, which in turn leads to a variance in the expansion rate that the observer sees. This effect alleviates half of the discrepancy between the expansions rates as interpreted from the Planck satellite data and from astrophysical sources such as Cepheids and Supernovae.

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