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Testing the assumptions of the EFTofLSS

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By infusing perturbation theory with information from small-scale N-body simulations, the EFTofLSS makes accurate predictions of summary statistics of the matter density field in the quasi-linear regime. In this work, we test the assumptions of the EFTofLSS by comparing its two flavours – 1) a bottom-up construction which calculates the EFT coefficients by directly matching a summary statistic (e.g. the power spectrum) from perturbation theory to data, and 2) a top-down construction which estimates the coefficients from the stress tensor of the N-body simulation. Performing a study in 1+1-dimensions, we find the results from the two flavours to be in excellent agreement with each other, providing a consistency check on the assumptions that the theory makes.

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