

Contributed Talk

Splinter Euclid

RESPONSES: A NOVEL APPROACH TO THE COVARIANCE OF THE  
MATTER POWER SPECTRUM

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The covariance of the matter power spectrum is an essential ingredient in the inference of cosmological information from large-scale structure data. However, due to the nonlinear nature of large-scale structure, this covariance includes a significant non-Gaussian contribution, which is challenging to predict either numerically or analytically. I will describe a recently developed novel approach which combines perturbation theory with small-volume simulations to deal with this challenge. The core underlying idea is that the impact of large-scale density fluctuations, which dominate the non-Gaussian part of the covariance, can be captured by the local response of the small-scale power spectrum to such large-scale modes. This response in turn can be calibrated accurately with relatively small cosmological simulations.