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Non linear evolution of BAO and IR - resummation

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Baryon acoustic oscillations (BAO) provide us with one of the most powerful cosmological probes. However, the BAO are plagued by non-linear effects which must be taken into account. I will discuss these effects and their physical impact on correlation functions in real and momentum spaces. I will present a new technique (so-called 'IR —resummation') to account for these effects to all orders in standard Eulerian perturbation theory and time-sliced perturbation theory. I will show that leading and next-to-leading IR —resummation ameliorates remarkably our understanding of two-point and higher-point statistics. Finally, I will touch on the contributions of short-wavelenght perturbations and discuss the possibility of ultraviolet renormalisation.

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