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Mark weighted correlation functions to constrain cosmological parameters

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In recent work (Yang et al., 2007.03150) we showed some examples on how to use the mark weighted correlation functions (MCFs), to study the large scale structure of the Universe. In this talk I will summarize that work and show how MCFs exhibit distinctive peaks and valleys that do not exist in the standard correlation functions. Although, MCFs are not suited to be used as “standard rulers” to probe the cosmic expansion history, they can be used to study structure formation parameters, such as σ_8 and the galaxy bias. Finally, I will show how we used MCFs to improve cosmological constraints on Ω_m and w by 30 % and 50 %, respectively.

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