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## **Towards precision cluster cosmology: advancements in Halo Mass Function and Bias within Euclid**

*Thursday 31 August 2023 15:00 (25 minutes)*

In this presentation, I present the current advances in the theoretical description of the halo mass function and halo bias aiming to improve the understanding of the dark sector through cluster cosmology with Euclid's photometric galaxy cluster survey. Utilizing a Bayesian approach and a suite of N-body simulations, we analyze the convergence of HMF and HB predictions, the impact of different halo finder algorithms, the violation of universality in the HMF, and the impact of baryons. Our prescriptions achieve sub-percent accuracy across distinct cosmological model variants, including massive neutrinos cosmologies and different baryonic prescriptions. This research emphasizes the importance of cluster cosmology and lays the foundation for more accurate cosmological inferences in the future.

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**Session Classification:** Parallel