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Pioneering Advancements in Modelling the Galaxy Three-Point Correlation Function

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For galaxy clustering, constraining cosmological parameters using the three-point correlation function has historically been hindered by the computational cost of modelling. Here, we introduce a new emulator developed as part of an Euclid Preparation Key Project, which significantly accelerates MCMC evaluations. For the first time in a simulation study, we present constraints on cosmological parameters by combining two- and three-point statistics. Additionally, we discuss ongoing activities related to modelling the 3PCF in the highly non-linear regime, exploring pioneering models for galaxy biasing up to next-to-leading order perturbative models.

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