

ABSTRACT ONLY

MODELING COMPLEX EMISSION PROCESSES IN GALAXY POPULATIONS THROUGH THE PROXY+MATCHING TECHNIQUE

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We introduce a novel technique for modeling luminosities at different wavelengths in large samples of galaxies, suitable for emission processes whose complexity requires many untested assumptions or the use of sophisticated algorithms: in the “Proxy+Matching” approach, a physical galaxy property from the model is chosen as a proxy for another property whose numerical value is unknown. Both proxy and unknown are assumed to follow a monotonic relationship, assigning that unknown to the simulated galaxies in such a way that some observational statistics for it are reproduced. By comparing the predictions for further galaxy properties with observations, a good proxy can be found.

We present the prospects of this technique for probing the submillimeter and Lyman alpha emission from galaxies in a cosmological framework, using a semi-analytic model of galaxy formation and evolution.

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