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Poster

STELLAR KINEMATICS OF SIMULATED GALAXIES FROM SYNTHETIC SPECTROSCOPIC OBSERVATIONS OF OPTICAL LINES USING RADIATIVE TRANSFER

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The advent of integral-field spectroscopic (IFS) surveys has greatly improved our understanding of galaxy evolution. It is now possible to map the distribution, metallicity and kinematics of stars and star-forming gas in galaxies. We also find ourselves at a time where the resolution of cosmological hydrodynamical simulations has reached a point in which the kinematics produced by the evolutionary models can be contrasted with high spatial resolution observations. The most reliable way to compare these datasets is to generate synthetic observations that can be analysed in the same way as the observed data. However, one of the challenges in the generation of these mock observations is to take into account the effects interstellar dust has over the radiation of the sources.

We present the framework for realistic mock observations of spatially resolved galaxy spectra, using state-of-the-art hydrodynamical simulations, stellar population models, radiative transfer with SKIRT, and with a particular focus on internal galaxy kinematics. This is an essential tool for interpreting the high-quality spectroscopic datasets that are becoming available. As a first application we compare the mock observations from the AURIGA cosmological zoom simulations with integral-field observations of present-day galaxies from SAMI and long-slit observations of galaxies at large look-back time from LEGA-C.