Manifold learning to explore the galaxy parameter space

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Abstract

Many methods based on machine learning (ML) have been developed to efficiently measure photometric redshifts of extremely large sample samples (such as the data base expected from the Euclid mission). Surprisingly, the number of ML algorithms that can also estimate physical parameters (such as galaxy stellar mass) is much smaller. Here I will present a semi-supervised method based on the self-organizing maps, able to predict galaxy stellar mass and SFR more accurately than standard template fitting. The same approach may also be used to compare observational data to cosmological simulations, assessing the quality of the latter in reproducing the parameter space of the former.
Slides: in PDF
Video: https://youtu.be/OaTfTK-duGI

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