PHYSICS AND ASTRONOMY

ARCNet

SPECIAL SEMINAR

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"Generative and interpretable deep learning for stellar spectra"

Abstract

The StarNet Cycle-GAN is a project that attempts to bridge the gap between synthetically generated stellar spectra and observed spectra. The method involves the use of a Generative Adversarial Network (GAN) that learns how to translate spectra from one domain into the other by identifying similarities and differences between the two. This particular application automates the estimation of stellar parameters by including the parameters for the synthetic spectra in the training process. Our work is still experimental, but if successful, this method could provide a generally applicable tool for matching theoretical models to observed data. The idea is that the network is capable of modelling the real data more accurately and can discover features that we may not even be aware of. By investigating these newly found relationships, the StarNet Cycle-GAN has the potential to both maximize the use of our current synthetic models as well as provide insight into how these models could be improved.

Friday, January 11, 2019

2:30 p.m.

Elliott Building – Room 162