

Abstract Submitted  
for the APR20 Meeting of  
The American Physical Society

**Using Machine Learning to Identify Astrophysical Transients in the DESI Survey** AMANDA WASSERMAN, DIVYANSHU GANDHI, SEGEV BENZVI, University of Rochester, DESI COLLABORATION COLLABORATION — During the next five years, the Dark Energy Spectroscopic Instrument (DESI) will carry out a massive redshift survey of more than 30 million galaxies and quasars, mapping the large scale structure of the universe out to a redshift of 3. During the survey we expect that many of these objects will contain bright transients such as supernovae, tidal disruption events (TDEs), and compact binaries that contaminate the spectra of the host galaxies. The identification of transients is thus important not only to ensure correct estimates of the host redshifts, but also because it provides an opportunity to obtain serendipitous spectra of the transients themselves. Spectroscopic classification is the gold standard in the categorization of transients, making these discoveries invaluable when combined with data from large photometric surveys. We have developed machine learning tools to identify and classify transients in galaxy spectra measured with DESI. In this contribution we describe these tools, characterize their performance using simulated spectra, and estimate the sensitivity of DESI to several types of astrophysical and cosmologically interesting transients.

Amanda Wasserman  
University of Rochester

Date submitted: 10 Jan 2020

Electronic form version 1.4