Abstract Submitted
for the CUWIP21 Meeting of
The American Physical Society

Determining the Efficiency of HETDEX's Emission Line Discovery Algorithm DELANEY WHITE, STEVEN FINKELSTEIN, ADAM MCCARRON, DUSTIN DAVIS, OSCAR CHAVEZ, GENE LEUNG, DANIEL MOCK, University of Texas at Austin — The Hobby-Eberly Telescope Dark Energy Experiment (HETDEX) takes advantage of the Hobby-Eberly Telescope at McDonald Observatory to map the three-dimensional positions of more than a million galaxies and will ultimately revolutionize our understanding of dark energy. While HETDEX already has an algorithm for detecting emission lines, many in the collaboration believe this collection is incomplete and wish the results could be verified by a separate analysis. I created an automatic line-finding code using a Markov chain Monte Carlo Ensemble sampler to cipher through over 60,000 known galaxies in one of HETDEX's spectroscopic surveys. My results will verify HETDEX detections and characterize the efficiency of the HETDEX algorithm based on feature strength. By quantifying what features are missing, collaborators can then improve the HETDEX algorithm and potentially increase the detection rate. Furthermore, verifying the catalog of known detections would give scientists confidence that the features they study are real.

Delaney White
University of Texas at Austin

Date submitted: 02 Jan 2021 Electronic form version 1.4