

Abstract Submitted
for the CUWIP22 Meeting of
The American Physical Society

Discovering Lyman Alpha Emitting Galaxies at a Redshift of 4.5 SHREYA KARTHIKEYAN, University of Maryland, College Park, ERIC GAWISER, RAMEEN FAROOQ, BARBARA BENDA, ADAM BROUSSARD, Rutgers University, ARJUN DEY, NOIRLab, KYOUNG-SOO LEE, VANDANA RAMAKRISHNAN, Purdue University, ODIN COLLABORATION — Hydrogen Lyman- α ($\text{Ly}\alpha$) emission has been a vital tool in surveying the high-redshift universe for galaxy evolution. Of interest are $\text{Ly}\alpha$ emitting galaxies (LAEs), young star-forming galaxies that trace large-scale structure in the high-redshift universe. The One-hundred-square-degree DECam Imaging in Narrowbands (ODIN) survey uses the Dark Energy Camera (DECam) to collect deep images of seven fields in the 673nm narrowband filter, corresponding to the $\text{Ly}\alpha$ line at a redshift of 4.5. We search for excess narrowband flux density that would reveal $\text{Ly}\alpha$ emission for over two million galaxies. We refine the candidate sample by requiring a color excess corresponding to the rest-frame equivalent width (EW) of $>20\text{\AA}$, to remove continuum-only objects and reduce contamination from lower-EW objects. The derived estimates for EW and $\text{Ly}\alpha$ luminosity show reasonable distributions, with a median $\text{Ly}\alpha$ luminosity of 7.78×10^{42} erg/s. We mask the selection field in regions of known bright stars to reduce clustering bias from bright-star artifacts. We find a final sample of approximately 4,000 LAE candidates at $z = 4.5$. We aim to further refine the sample by eliminating possible contamination from galaxies emitting singly-ionized oxygen to improve the LAE catalog for clustering analysis.

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Date submitted: 11 Jan 2022

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