XIII SERBIAN CONFERENCE ON SPECTRAL LINE SHAPES IN ASTROPHYSICS
August 23-27, 2021, Belgrade, Serbia
Book of Abstracts, Eds. A. Kovačević, L. Č. Popović and S. Simić
Astronomical Observatory Belgrade, 2021

Poster

VARIABILITY SELECTED LOW LUMINOSITY ACTIVE GALACTIC NUCLEI FROM ASAS-SN SURVEY

Heechan Yuk[1], Xinyu Dai[1], T. Jayasinghe[2], Hora D. Mishra[1], Hai Fu[3], Christopher S. Kochanek[2,4], Benjamin J. Shappee[5] and K. Z. Stanek[2,4]

[1]*Homer L. Dodge Department of Physics and Astronomy, University of Oklahoma, Norman, OK 73019, USA*
[2]*Department of Astronomy, The Ohio State University, 140 West 18th Avenue, Columbus, OH 43210, USA*
[3]*Department of Physics & Astronomy, University of Iowa, Iowa City, IA 52242, USA*
[4]*Center for Cosmology and AstroParticle Physics, The Ohio State University, 191 W. Woodruff Ave., Columbus, OH 43210, USA*
[5]*Institute for Astronomy, University of Hawai`i at Manoa, 2680 Woodlawn Dr., Honolulu, HI 96822, USA*

E-mail: hyuk@ou.edu, xdai@ou.edu

Variability is one of key features to select active galactic nuclei (AGN). We present an analysis of All-Sky Automated Survey for Supernovae light curves of 1218 galaxies from the Sloan Digital Sky Survey spectroscopic sample with the g magnitude brighter than $g < 14$. 35 objects are identified with AGN-like structure function (SF), which is about 3% of the sample. The majority of the variability selected AGN are low luminosity AGN (LLAGN) with the Eddington ratios ranging from 10^{-4} to 10^{-2}. We estimate the fraction of LLAGN in the population of galaxies as 3% down to an Eddington limit of 10^{-4}. Traditional BPT selection is incomplete, which classifies $30 \sim 50$% of the LLAGN as starburst galaxies instead. On average, the fractional flux variability of a LLAGN is $\sim 10^{-3}$, and the power law index of SF is 1.88 ± 0.05. This slope is steeper than the expected value from the damped random walk model.