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Narrow-line Seyfert 1 galaxies in Sloan Digital Sky Survey: a new optical spectroscopic catalogue

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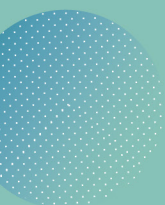
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Abstract

Narrow-line Seyfert 1 (NLSy1) galaxies are an enigmatic class of active galactic nuclei (AGN) that exhibit peculiar multiwavelength properties across the electromagnetic spectrum. For example, these sources have allowed us to explore the innermost regions of the central engine of AGN using X-ray observations and have also provided clues about the origin of relativistic jets considering radio and gamma-ray bands. Keeping in mind the ongoing and upcoming wide-field, multi-frequency sky surveys, we present a new catalogue of NLSy1 galaxies. This was done by carrying out a detailed decomposition of >2 million optical spectra of quasars and galaxies from the Sloan Digital Sky Survey Data Release 17 (SDSS-DR17) using the publicly available software "Bayesian AGN Decomposition Analysis for SDSS Spectra". The catalogue contains 22656 NLSy1 galaxies which is more than twice the size of the previously identified NLSy1s based on SDSS-DR12. As a corollary, we also release a new catalogue of 52273 broad-line Seyfert 1 (BLSy1) galaxies. The estimated optical spectral parameters and derived quantities confirm the previously known finding of NLSy1 galaxies being AGN powered by highly accreting, low-mass black holes. We conclude that this enlarged sample of NLSy1 and BLSy1 galaxies will enable us to explore the low-luminosity end of the AGN population by effectively utilizing the sensitive, high-quality observations delivered by ongoing/upcoming wide-field sky surveys. The catalogue has been made public at this [https URL](https://doi.org/10.1093/mnras/stz231).

