

FANTASTIC FITS OF AGN SPECTRA WITH FANTASY PYTHON CODE

D. Ilić^{1,2}, N. Rakić³ and L. Č. Popović^{1,4}

¹*Department of Astronomy, University of Belgrade, Studentski trg 16,
11000 Belgrade, Serbia*

²*Humboldt Research Fellow, Hamburger Sternwarte, Universität Hamburg,
Gojenbergsweg 112, D-21029 Hamburg, Germany*

³*Physics Department, Faculty of Natural Sciences and Mathematics,
University of Banjaluka, Banjaluka, RS, Bosnia and Herzegovina*

⁴*Astronomical Observatory, Volgina 7, 11060 Belgrade, Serbia*

E-mail: dragana.ilic@matf.bg.ac.rs

With the emerging spectroscopic surveys (e.g., SDSS-V, DESI, WEAVE, 4MOST, MSE, WST) there is a need to develop various open-source spectral analysis tools, which could be used either in a fast-mode for quick spectral analysis or in a slow-mode with detailed approach to access uncertainties of spectral fittings. We have recently released the software package `fantasy` (Fully Automated pythoN Tool for Agn Spectral analYsis), a tool for multicomponent fitting of active galactic nuclei (AGN) spectra in the optical and near infrared wavelength band. AGN spectra are modelled by simultaneously fitting the underlying broken power-law continuum, predefined emission line (narrow, broad, coronal, etc.) lists, and an Fe II model, which is here extended to cover the wavelength range from 3700 Å to 11000 Å.

Here we present a case study of the application of `fantasy` code on the sample of AGN taken from the SDSS survey, for which we show that when Fe II emission is present near $H\beta$, it is also detected redward from $H\alpha$, potentially contaminating the broad $H\alpha$ line blue-wing. We show that the `fantasy` code works well when fitting AGN type 1 spectra from SDSS, but being open-source, flexible and easy to use, it shows good potential to be used for AGN spectral analysis in the coming spectral surveys.