UV Spectroscopy including ISM line absorption: of the Exciting Star of Abell 35

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Reliable spectral analysis that is based on high-resolution UV observations requires an adequate, simultaneous modeling of the interstellar line absorption and reddening. In the case of the central star of the planetary nebula Abell 35, BD–22 3467, we demonstrate our current standard spectral-analysis method that is based on the Tübingen NLTE Model-Atmosphere Package (TMAP). We present an ongoing spectral analysis of FUSE and HST/STIS observations of BD–22 3467.
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Abstract

Reliable spectral analysis is based on high-resolution UV observations to determine abundances of individual iron-group elements and to use their ionization equilibrium. In the case of the exciting star of Abell 35, BD–22 3467, we aimed to determine abundances of Si, and Fe. Subsolar values of at least 2 orders of magnitude are demonstrated for both elements. In an ongoing spectral analysis by means of NLTE model atmospheres, we aim to improve both models iteratively.

Available Spectra

The FUSE observation (obsID: P131310000) was retrieved from the MAST archive and was performed on May 21, 2000. The spectrum covers a wavelength range of 959 – 1084 Å with a resolution of 1 Å. The HST/STIS observation (obsID: 1061010810) covers the range from 1104 – 1701 Å with an average resolution of 0.7 Å.

Results

An evaluation of the O, Fe, and Ni ionization equilibrium confirms the parameters derived by Herold & Bianchi (2002). The spectral range of the FUSE observation (obsID: 1061010810) covers the range from 1104 – 1701 Å. The solar abundance, which is derived from the ISM, is in good agreement with the solar abundance for Ni. The solar abundance is taken from Asplund et al. (2005).

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