

The Planetary Nebula IC 4634 and its Central Star

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We have measured the spectral line intensities of the metal poor planetary nebula IC 4634. Using an axi-symmetrical model calculation, we try to fit the optical and UV region spectra, i.e., Hamilton Echelle and IUE observations. One might expect the complicated density spatial variation, but the model predicts a range in densities that may not be as large as actually exist, i.e., $N_e \sim 5000 \text{ cm}^{-3}$. In spite of the geometrical complexity of the S shaped double-lobed structure, the simple photoionization model with a spherical symmetry can fit most emission lines, fairly well. The derived chemical compositions have been compared with the previous estimates and also with the Sun. The metallicity in IC 4634 appears to be lower than in the Sun or the average planetary nebula. The most likely temperature of the central ionizing source of IC 4634 appears to be about 55,000 K. We find a central star mass of about 0.55 solar mass from comparison with theoretical evolutionary tracks.