OBSERVATIONS OF NGC 7662 FROM 1300 TO 2850 Å

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An ultraviolet spectrum of NGC 7662 was obtained with a rocket-borne telescope in a 130 s exposure using a microchannel plate detector and film. In addition to the three strong ultraviolet lines of C III], C IV, and He II seen previously in NGC 7027, a new strong line of [Ne IV] at 2440 Å and a prominent continuum were measured in NGC 7662. The observed fluxes are given for both the lines and the continuum on an absolute basis, with a typical accuracy of about 25 percent. The absolute calibration is based primarily on in-flight observations of the stars α Lyr and α And, which have been well measured in the ultraviolet. This calibration is confirmed by laboratory data and by photoelectric observations from the ANS satellite.

The correction for interstellar extinction with E(B-V)=0.22 has been determined on the basis of the observed and calculated line ratios for the hydrogenic recombination line of He II at 1640 Å to Hβ. (Paper will appear in The Astrophysical Journal.)

INTERPRETATION OF THE ULTRAVIOLET SPECTRUM OF NGC 7662

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The ultraviolet emission lines that were measured in the spectrum obtained from our rocket observation of NGC 7662 have been compared with those predicted by a set of models. The models allow a determination of the carbon abundance which is found to be solar and the C/O ratio which is equal to unity. In order to obtain a good fit, dielectronic recombination and charge exchange between neutral hydrogen and C IV were included, both of which increase the concentration of C III. The observed continuum consists of light from the central star and from the nebula, which contributed primarily via the two photon process in the H° and the Balmer continuum.

Yervant Terzian (ed.), Planetary Nebulae, Observations and Theory, 121-129.