

SPECTROSCOPY OF EXTRAGALACTIC PLANETARY NEBULAE IN THE ULTRAVIOLET

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Three high-excitation planetary nebulae in the Magellanic Clouds were successfully observed with the International Ultraviolet Explorer. Emission lines as well as nebular and stellar continua were detected. Fluxes in the lines 1550 C IV, 1640 He II, 1663 O III, and 1909 C III were measured in spectra of LMC P40, SMC N2, and SMC N5 obtained with the IUE short wavelength spectrograph; 2422 Ne IV was measured in P40 with the long wavelength spectrograph. The data were analyzed together with groundbased observations by Aller in order to derive ionization models and the nebular abundances of He, C, N, O, S, Ar. The C abundances are as large as those typically found in galactic planetary nebulas, although the interstellar media of the Clouds are notably deficient in C. Thus, the C was synthesized in the progenitor stars and presumably was lifted to the stellar envelopes by convection prior to the ejection of the nebulae. Other planetary nebulae in the Clouds, as well as the planetary nebula in the Fornax galaxy, may be observable with IUE.

DISCOVERY OF A LARGE HIGH-EXCITATION PLANETARY NEBULA

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The discovery of a new planetary nebula from (O III) interference filter imagery is reported. The nebula, PN 136 + 5⁰1, is 15' in diameter and asymmetric in appearance. Spectrophotometry of the central regions indicate it is of excitation class between 8 and 10. A single bright condensation within the nebula exhibits emission lines of much lower ionization with (S II) $\lambda\lambda$ 6717, 6731 line intensities indicating an