A CASE STUDY OF A WC NUCLEUS

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ABSTRACT. We have examined the extraordinarily rich WC spectrum of the nucleus of He 2-99, an object closely akin to BD +30°3639. In all, we log 25 lines in the UV (λ1240-λ1950; λ2550-λ3150) and 89 in the optical between λ3610 and λ7065 (including a small number of nebular features). We provide a fundamental atlas for this class of star, wherein we give fluxes and identifications of the emission lines, including a detailed accounting of blends. The most powerful emissions are those of C III followed by C II and C IV. There is good indication that C I and even C V are present as well. Oxygen is well represented by O III; O II, O IV, and O V all appear present, but are generally confused by blends. Si III and Si IV appear, as do He I and He II. Other than N V, little case can be made for stellar nitrogen. The most serious barrier to analysis of the spectrum is the problem of coincidences and blends: there are few pure lines. Analysis of the nebular spectrum, which is severely contaminated by stellar line emission, indicates enrichment in carbon, but none in nitrogen.

S. Torres-Peimbert (ed.), Planetary Nebulae, 313.