# CCD SPECTROPHOTOMETRY OF PLANETARY NEBULAE AT WENDELSTEIN OBSERVATORY

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During the past decade the achievements in the theory of stellar atmospheres of hot stars combined with improved spectrograph and detector technology at large telescopes have led to a significantly improved knowledge of PN nuclei properties (see Méndez et al. 1988, Kudritzki and Méndez 1989).

The spectroscopic determination of the fundamental stellar parameters effective temperature, gravity, Helium abundance, and derived quantities like mass, luminosity, or distance has the advantage of being independent of assumptions on the nebula as compared to more indirect methods which e.g. are based on the hypothesis of optical thickness to H–Lyman continuum radiation within the nebula (the effects of optically thin or "leaking" nebulae is discussed by Méndez et al., 1992).

Recently, improved NLTE–model–atmosphere calculations ("Unified Models") have become available (Gabler et al. 1989), now taking into account the effects of sphericity and the presence of stellar winds. The far UV flux distribution provided by these calculations enables one to investigate the ratio between stellar flux shortward of the H/He II absorption edges and the corresponding nebular emission line flux, thus comparing with the classical diagnostics for central star temperature (Zanstra method), see Gabler et al. 1991, A&A 245, 587.

The theoretical interest in this topic has motivated us to start a research program of developing a CCD–camera (specifically designed for interference filter spectrophotometry; see Roth 1990) and measuring PN emission line fluxes in the important lines of $H_\alpha$, $H_\beta$, $He\,II_{4686}$, and $[O\,III]_{5007}$. Global fluxes of the latter have become of interest since a comparison of published [O III] fluxes taken together with the spectroscopically derived distances of our sample of central stars yields a luminosity distribution which is consistent with the PNLF as determined by Jacoby and Ciardullo (Jacoby 1989, ApJ 339, 39; Ciardullo et al. 1989, ApJ 339, 53; and subsequent papers).

In view of the upcoming installations of 8m–class telescopes (VLT–ESO, SST–McDonald Obs.) we anticipate that central stars with visual magnitudes up to 16 will become accessible to spectroscopic analysis in the future. In addition to this we intend to conduct an extensive observing program at a local 0.8m telescope (Wendelstein Observatory) in order to check and supplement the existing data base of PN emission line fluxes making use of the CCD observing technique.

## References

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