

Abstract Submitted  
for the SES14 Meeting of  
The American Physical Society

**Temperatures and Densities of Planetary Nebulae from Optical Spectra** BENJAMIN RILEY, Gatton Academy of Mathematics and Science in Kentucky, TING-HUI LEE, Western Kentucky University, RICHARD SHAW, LETIZIA STANGHELLINI, National Optical Astronomy Observatory — We present preliminary results from an optical spectroscopic survey of compact planetary nebulae (PNe) in the Galactic disk. PNe are the envelopes ejected by Sun-like stars near the end of their lives. This is an ongoing optical+infrared spectral survey of 150 compact PNe to build a complete database of PN chemical abundances in the Galactic disk. We obtained optical spectra of 12 PNe with the Southern Astrophysical Research (SOAR) Telescope in February 2013. The flux intensities of the emission lines H-alpha, H-beta, [OIII], [NII], [SII], and [ArIV] are measured and reddening corrected. Here we present the physical diagnostics such as electron temperature and density for each PN derived from the reddening-corrected line intensities. We will use these diagnostics to derive the elemental abundance of He, N, O Ne, S and Ar in subsequent analyses.

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Date submitted: 19 Sep 2014

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