

## SPECTRAL ANALYSIS OF MID-IR EXCESSES OF WDS

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In our previous Spitzer 24  $\mu\text{m}$  survey of hot white dwarfs (WDs) and archival Spitzer study of pre-WDs, i.e., central stars of planetary nebulae (CSPNs), we found mid-IR excesses for  $\sim 15$  WDs/pre-WDs. These mid-IR excesses are indicative of the presence of circumstellar dust that could be produced by sub-planetary objects. To further assess the nature of these IR-excesses, we have obtained Spitzer IRS, Gemini NIRC2 and Michelle, and KPNO 4m echelle spectra of these objects. In this paper we present the analysis of these spectroscopic observations and discuss the nature of these IR excesses.