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The White Dwarf Photosphere Experiment[1] MIKE MONTGOMERY, DON WINGET, Department of Astronomy, University of Texas at Austin — Over 97% of stars either are, or will become, white dwarf stars, giving them broad relevance. The astrophysical questions they can help us address include the age of the universe, the age and history of star formation of our Galaxy's various stellar populations, and aspects of the evolution of stars. The compact and dense nature of these ubiquitous stars means that their atomic physics is more difficult to model than other stars, even in the outermost layers. We briefly describe the astrophysical and physical problems associated with white dwarf photospheres (the plasma where the observed light originates) and assess the impact of these uncertainties. We establish the work on white dwarf stars in the larger context of the "at-parameter" experiments of the Wootton Center for Astrophysical Plasma Properties (WCAPP). The current experiments investigate macroscopic plasmas under the density and temperature conditions we find in the cosmos; we will briefly summarize the results of these ongoing experiments, with particular emphasis on recent results of the White Dwarf Photosphere Experiment (WDPE).

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