

CREATING WHITE DWARF PHOTOSPHERES IN THE LABORATORY

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We present preliminary reports on the laboratory astrophysics experiment to create the first macroscopic plasmas with temperatures and electron densities typical of white dwarf (WD) photospheres. We use the X-ray flux generated from the Z accelerator at Sandia National Laboratories, NM to uniformly heat a gas cell filled with hydrogen gas. We aim to extend the experiments of Wiese et al. (1972) to a more widely-applicable range of WD photospheric conditions, and by implementing improved diagnostics, we will test theoretical WD atmosphere models, such as Stark broadening, with empirical results.