
A spectroscopic and kinematical analysis of the hottest white dwarfs from the SDSS DR14

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Abstract

Hot white dwarfs ($T_{\text{eff}} > 45\text{kK}$) serve as powerful galactic and cosmological tools. They can be utilized to investigate the properties of weakly interacting particles, to check if there exists a gravitational field effect on the fine structure constant, and to derive the age of the Galactic halo. Because of their high luminosities compared to the cooler white dwarfs, hot white dwarfs can be studied not just in the solar neighbourhood, but also in the thick disk and halo population. However, due to their short evolutionary timescales, hot white dwarfs are relatively rare objects, requiring large sky surveys to detect them. Here, we present results of our non-LTE spectral analysis of several hundred of the hottest white dwarfs from the SDSS DR14 and discuss the effect of metal line blanketing on the derived effective temperatures and surface gravities. In addition we present a study of their galactic distribution based on Gaia data.

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