
The importance of white dwarfs in astrophysics

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Abstract

All stars with masses below, approximately, 8 times that of the Sun will become white dwarfs. Therefore, these objects are ubiquitous in the Galaxy. Their long cooling times allow limits to be placed on the age of the galactic disk and the white dwarf luminosity function can reveal the history of star formation. White dwarfs are also implicated in the production of type 1a supernovae. More recently, they have been found to accreting debris from extra-solar planetary systems and could be potential probes of variations of fundamental physical constants in strong gravitation fields. However, studying all these phenomena requires accurate measurements of the physical properties (temperatures, masses and radii) of sample of individual stars, which themselves rely on the availability of realistic stellar atmosphere models. This oral presentation will review our understanding of the properties of white dwarfs and the important role played by stellar model atmosphere calculations in this work.

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