

Spring 2022 Colloquium

Department of Physics & Astronomy, A&M-Commerce

Feb 17, Thursday, 4-5 PM in Science Building 127

(coffee and cookies will be served at 3:50 PM)

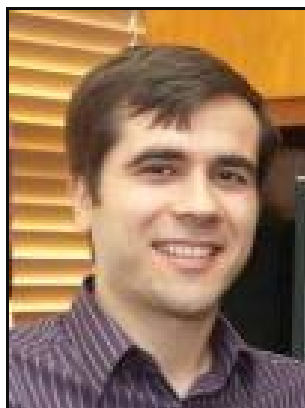
Astronomy

Tales from Old Friends:

Single and Double White Dwarfs in the Gaia Era

Dr. Mukremin Kilic

University of Oklahoma



Dr. Kilic earned a BS (1999) in Physics at the Bosphorus University in Istanbul (Turkey), and a Ph.D. degree (2006) in Astronomy at the University of Texas at Austin. His Ph.D. research topic was on cool white dwarfs and the age of the Milky Way Galaxy. He worked as a post-doc at the Ohio State University and the Harvard-Smithsonian Center for Astrophysics. In 2011, Dr. Kilic began his appointment as an assistant professor at the University of Oklahoma, where he is currently doing research in astrophysics. More information about Dr. Kilic and his research can be found at

<https://ou.edu/cas/physics-astronomy/people/profiles/kilic>

Abstract

ESA's Gaia mission has finally revealed the population of faint white dwarf stars in the solar neighborhood. We use this dataset to answer fundamental questions about the nature of white dwarfs, including their mass distribution, cooling physics, and ultracool white dwarfs. We also use the same dataset to search for the most massive white dwarfs. We provide evidence that a significant fraction of the most massive white dwarfs form through mergers. We conclude by highlighting the discovery of an ultramassive white dwarf with a spin period of only 70 seconds.