

Fall 2023 Colloquium

Department of Physics & Astronomy, Texas A&M University-Commerce

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Astronomy

White Dwarf Asteroseismology in the TESS and Gaia Era

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Dr. Bell earned BS (2010) degrees in Physics and Astronomy at the University of Washington, and a Ph.D. degree (2017) in Astronomy at the University of Texas at Austin. His Ph.D. research topic was on pulsations of white dwarf stars. He worked as a post-doc at the Max Planck Institute for Solar System Research studying solar-like oscillations of red giant stars, and as an NSF Astronomy and Astrophysics Postdoctoral Fellow at the University of Washington searching for exoplanets transiting white dwarf stars. In 2022, Dr. Bell began his appointment as an assistant professor at Queens College of the City University of New York, where he continues to

study white dwarf pulsations and exoplanetary systems. More information about Dr. Bell and his research can be found at

<https://physics.qc.cuny.edu/people/faculty/kbell>

Abstract

Pulsating white dwarf stars ring out in multiple simultaneous frequencies that can, in principle, be used to sensitively map the stellar interior---a technique known as asteroseismology. Modern astrometric data from Gaia and uninterrupted light curves from space-based Kepler and TESS missions have revolutionized this field and our understanding of white dwarf pulsations. I will highlight some of these recent advances and describe my vision for how astrometry data and pulsation data can be brought together to realize the full potential of asteroseismology to reveal the details of white dwarf interior structures.