

A Revolution in Stellar Astrophysics, and the Remaining Challenges

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ESA's Gaia mission has provided distances to around 1.5 billion stars and revolutionized stellar astrophysics. Gaia 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 (crystallization), and ultracool white dwarfs. I will highlight the current challenges in the physics of white dwarf stars and our efforts to solve them.