

Abstract Submitted  
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**Evidence for White Dwarfs with Strange-Matter Cores**<sup>1</sup> GRANT MATHEWS, INSAENG SUH, NGUYEN LAN, WILLIAM ZECH, University of Notre Dame, KAORI OTSUKI, FRIEDOLIN WEBER, San Diego State University — We summarize masses and radii for a number of white dwarfs as deduced from a combination of proper motion studies, Hipparcos parallax distances, effective temperatures, and binary or spectroscopic masses. A puzzling feature of these data, however, is that some stars appear to have radii which are significantly smaller than that expected for a standard electron-degenerate white-dwarf equations of state. We construct a projection of white-dwarf radii for fixed effective mass and conclude that there is at least marginal evidence for bimodality in the radius distribution for white dwarfs. We argue that if such compact white dwarfs exist it is unlikely that they contain an iron core. We propose an alternative of strange-quark matter within the white-dwarf core. We also discuss the impact of the so-called color-flavor locked (CFL) state in strange-matter core associated with color superconductivity. We show that the data exhibit several features consistent with the expected mass-radius relation of strange dwarfs. We identify eight nearby white dwarfs which are possible candidates for strange matter cores and suggest observational tests of this hypothesis.

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