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# Can white dwarfs be powered by self-annihilating dark matter?

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White dwarfs (WDs) are compact remnants of stars, supported by electron degeneracy pressure, and their structures are generally considered to be well understood. However, there are notable discrepancies between the observed mass-radius (MR) relationship of WDs and the predicted values. We explore the possibility that WDs could serve as a portal to dark matter (DM) physics by investigating the effects of admixing self-annihilating dark matter (SADM) into WDs. Our findings suggest that some of the observed peculiar WDs can be explained even if SADM constitutes less than 1% of the WD's total mass, with a self-annihilation cross-section $\langle\sigma v\rangle$ that is much smaller than the thermal relic cross-section.

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