

Imprints of dark stars in the 21-cm signal

A strongly self-interacting component of dark matter can lead to formation of compact objects. These objects (dark stars) can in principle be detected by emission of gravitational waves from coalescence with black holes or other neutron stars or via gravitational lensing. However, in the case where dark matter admits annihilations, these compact dark matter made objects can have significant impact on the cosmic reionization and the 21-cm signal. We demonstrate that even if dark matter has suppressed annihilations, dark stars could inject a substantial amount of photons that would interact with the intergalactic medium. For dark matter parameters compatible with current observational constraints, dark stars could modify the observed reionization signal in a considerable way.

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yes

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