

# Wide Binary Evaporation by Dark Solitons

*Friday, 31 May 2024 17:45 (5 minutes)*

We perform an analytic calculation of binary star evaporation rate under the gravitational potential from spatially extended dark solitons, and demonstrate that Milky Way's wide binary star systems are susceptible to tidal perturbations from dark matter solitons of comparable and larger sizes. The GAIA data shows a sharp decrease of halo-like wide binaries at large separations, indicating possible disruptions by dark solitons. We further put constraints on the mass and radius of solitons, which may correspond to ultralight bosonic dark matter around  $10^{-15}$  eV.

## Paper info

**Primary author:** WANG, Zihang (Institute of High Energy Physics)

**Presenter:** WANG, Zihang (Institute of High Energy Physics)

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