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On the dynamical friction effects operating in the dwarf spheroidal galaxy – Fornax. RAMANATH COWSIK, KASEY WAGONER, AMIT SIRCAR, Washington University — The dwarf spheroidal Fornax is a satellite of the Galaxy, and it comprises mostly of population-II stars gravitationally bound together by a dense halo of dark matter; it has several globular clusters, which are broadly distributed within the dwarf spheroidal. Recently Goerdt et al. have reopened the paradoxical question: why is it that the dynamical friction, caused by the dark matter in Fornax, acting on the globular clusters has not caused their orbits to spiral inwards making them coalesce to form a nucleus? We provide a possible resolution to this paradox: as the assumed size of the halo increases, yet maintaining the dark matter density needed to bind the cluster, the dispersion in the velocities of the dark matter particles also increases thereby reducing steeply the magnitude of the dynamical friction, so that for a halo radius larger than $\sim$3kpc the time needed for the globular clusters to spiral in becomes longer than the age of the Universe. These considerations complement earlier efforts based on detailed modeling of spatial distributions and rotational velocities of the visible components of galactic systems.

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