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Newtonian and MONDian Stellar Orbits in a Spherically Symmetric Hernquist Density Profile JUSTIN MESSINGER, ALEXANDER STARON, STEPHEN ALEXANDER, Miami University — Dwarf Spheroidal Galaxies (dSph) are small loosely bound collections of stars that are interesting test sites for models of dark matter or as regions where Newtonian gravity requires modification. We present a model that can be used to study the motion of stars in a dSph. The distribution of matter is described by a baryon cloud with a Hernquist density profile, and we explicitly calculate the motion of several thousand stars subject to the gravity from the cloud. We present sample orbits for both Newtonian and MONDian gravity that can be used to calculate velocity dispersions which can be compared to actual observations of dSph's.

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