

Abstract Submitted
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Image Comparisons of Black Hole vs. Neutron Dark Star by Ray Tracing D.T. FROEDGE, Formerly Auburn University — In previous papers we have discussed the concept of a theory of gravitation with local energy conservation, and the properties of a large neutron star resulting when the energy of gravitation resides locally with the particle mass and not in the gravitational field. A large neutron star's surface radius grows closer to the gravitational radius as the mass increases. Since the localization of energy applies to the photon, they do not decrease energy rising in a gravitational field, and can escape. Photon trajectories in a strong gravitational field can be investigated by the use of ray tracing procedures. Only a fraction of the blackbody radiation emitted from the surface escapes into space (about 0.00004% for Sag A*). Because of the low % of escaping radiation, the heavy neutron stars considered in this paper will be referred to as a Neutron Dark Star (NDS). In contrast to the Black Hole (BH) which should be totally dark inside the photon shadow, the NDS will appear as a fuzzy low luminosity ball. For Sag A* a full width half maximum diameter is about 3.85 Schwarzschild radii inside the shadow. (<http://www.arxdtf.org/css/Image%20Comparisons.pdf>). The Event Horizon Telescope should be able to distinguish the difference between the theories.

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