Relativistic orbits in a generalized uncertainty principle space-time RHYS TAUS, JONAS MUREIKA, Loyola Marymount University — Many theories of quantum gravity corroborate the notion of a minimal length scale. The generalized uncertainty principle (GUP), an extension of the Heisenberg uncertainty principle also incorporates this feature. Recent work has yielded a modification to the Schwarzschild solution that incorporates the GUP, making the theory self-complete and modifying the associated black hole characteristics. In this project, corrections to the orbits of timelike and lightlike test particles are explored in the GUP spacetime through the modified effective potential. Corrections to the classical experimental tests, notably the advancement of the perihelion of mercury and the deflection of starlight, are found and compared to results from other studies of a non-commutative spacetime.

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