

Abstract Submitted  
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**Particle and Photon Geodesics in Extended Uncertainty Principle Schwarzschild Spacetime** MARIANGELA MISCEO<sup>1</sup>, BAILEY PAGE<sup>2</sup>, Loyola Marymount Univ — This project will examine particle and photo orbits around Schwarzschild black holes and will compare them to particle and photon orbits around EUP (extended uncertainty principle) supermassive black holes. The EUP metric introduces a position uncertainty correction,  $L^*$ , which is a large fundamental distance scale. This scale should be large enough that it will not affect solar system scale gravitation. Prior work has been done to derive an EUP corrected mass term which is dependent on  $L^*$  and the original mass. From this we will derive the new metrics effective potential equation. We will obtain an equation of motion from the effective potentials of these spacetime metrics and then further more examine the equations of motion for these particular space-times. We will then plot the orbits and compare this to data from the EHT (Event Horizon Telescope) of black holes such as Sagittarius A\*, and M87.

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