Abstract Submitted
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Aperture-Based Antihydrogen Gravity Experiment: Parallel Plate Geometry[1] J.R ROCHA, RYAN HEDLOF, CARLOS ORDONEZ, University of North Texas — A Monte Carlo simulation is presented of an experiment that would indicate whether antihydrogen falls up or down in earth's gravitational field. The work is the third iteration of ongoing research to reduce the experimental run time that would be necessary for an aperture-based experiment at the CERN Antiproton Decelerator facility. The configuration consists of two circular, parallel plates separated by a small vertical distance with an axis of symmetry directed away from the center of earth. There are one or more pairs of circular barriers that protrude from the upper and lower plates, thereby forming an aperture. The probability that an antiatom will annihilate within a "shadow region" on the upper or lower plate is determined for a point, line and spheroidal source of antihydrogen. Such annihilations would indicate the direction of the acceleration of antihydrogen due to gravity.

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