

Abstract Submitted
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A Classical Model for Virtual Particle Exchange DANIEL BULLOCK, DAVID BIXLER, Angelo State University Department of Physics — As raindrops splash on the surface of a parking lot, a bubble of air may form briefly in a puddle. Some bubbles are very small and others can be rather large. They also vary in how long they last before releasing the air trapped inside in a manner reminiscent of high-energy particle collisions. When a bubble is formed, it essentially draws energy from the “vacuum” or surrounding medium, and the energy must be deposited back into the medium within a predictable time. The lifetime of a bubble may follow an uncertainty principle that determines the size or energy of the bubble. This research project attempts to formulate the uncertainty in the energy and lifetime of these bubbles and model the four fundamental forces based on the range of interaction. Just as spandex has been used and disproved as a model for the “fabric of space-time,” this bubble model may provide some insight into how elementary particles make up the fundamental forces of nature. This model will also be tested against a change in interaction medium to better correlate the data with known uncertainties.

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