

Abstract Submitted
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The Aparticle Hypothesis, Locality, and Gravitation MICHAEL DEVINE, No Company Provided — A novel hypothetical fundamental element of reality is presented. This element, a bi-partite system of relativistically anti-correlated definite states (referred to as an “aparticle”), along with a local quasi-Lagrangian, is shown capable of explaining the observation of quantum teleportation without the necessity of superluminal effects. Thus, the element provides a prospective resolution to the open question of locality. Further, gravitation can be derived from the hypothesis and thus the hypothesis offers a potential pathway toward a quantized theory of gravity. The veracity of the model may be experimentally testable in a modified EPRB experiment in which the outcome predicted by the hypothesis differs from the prediction of quantum mechanics.

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