

Abstract Submitted
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Obtaining the inverse square law from Quantum Field Theory

MORGAN LYNCH, DAVID BIXLER, Angelo State University — The formalism of quantum field theory (QFT) has been applied with success to all known fundamental forces except gravity. Although the recent attempts at a quantum gravitational theory based on QFT have been shown to be nonrenormalizable, there are still attempts being made to eliminate the infinities which plague its equations. As an introduction to QFT with an emphasis on the gravitational interaction, we will answer the question often asked by beginning physics students: Why does the gravitational force obey an inverse square law? We will show that, according to QFT, the presence of two particles in a massless boson field will yield an inverse square attractive force.

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