

Abstract Submitted
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Application of a Semiclassical Model for Particle Decay EUGENE CHAFFIN, NATHAN HAWKINS, Bob Jones University — We apply a tunneling model of particle decay via the intermediate vector boson. Past workers have applied the tunneling model to pair production [Schwinger, 1951; Brezin and Itzykson, 1970; Casher, Neuberger, and Nussinov, 1979]. In our model we apply a potential barrier of 80 GeV, the mass-energy of the W particle, to inhibit beta-decay. A factor similar to the Bethe preformation factor is then evaluated for various weak interaction particle decays to examine whether we get quantitative agreement with experiment. The model is successful in explaining why certain decays proceed by the strong interaction, and seems to simulate certain weak-decay ratios.

Eugene Chaffin
Bob Jones University

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