

Abstract Submitted  
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**Toward a new criteria of soliton/ domain wall creation in condensed matter systems?** ANDREW BECKWITH, APS/ Fermi contractor — We do an extension of prior work where we applied a quasi 1-Dimensional wavefunctional formulation of tunneling Hamiltonians to a physical transport problem characterized by a perturbed washboard potential. To do so beforehand in the quasi one dimensional situation, we considered tunneling between states that were modeled as wavefunctionals of a scalar quantum field. I-E curves that matched Zener curves — were used to fit data from an experimental stand point with quasi one dimensional wavefunctionals congruent with the false vacuum hypothesis. We generalize this to the case of higher dimensional formulations of the wave functionals, and also present a minimum criteria for the formation of soliton/ instanton structure in higher dimensions.

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