

Abstract Submitted
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Microscopic Treatment in Nucleation KARLA GALDAMEZ, University of Massachusetts Boston — In nucleation, position dependent mass (PDM) Hamiltonian has not been analyzed because of the potentially foundational questions it raises. Further, the quantum effects exhibited in this system have been well established. Thus, nucleation provides an interesting template to investigate quantum effects exhibited in macroscopic systems. We will approach our problem from two different perspectives. First, starting from first principles (ab initio), we will present a microscopic description of nucleation arriving at a final quantum mechanical Hamiltonian. Subsequently, we will introduce the topic of rules of quantization with an emphasis on the Weyl transform. Surprisingly, our ab initio microscopic treatment is equivalent to that of Weyl quantization thus revealing a 1:1 correspondence between quantum and classical representation methods.

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