

Abstract Submitted
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Is there a cosmological influence on the quantum-classical transition? C.L. HERZENBERG, Herzenberg Associates — Calculations appear to indicate that the distinction between quantum and classical behavior may be based in part on the presence of cosmic expansion velocities within the spatial regions occupied by extended objects (C. Herzenberg, Physics Essays, December 2006). The range of magnitudes and directions of the extraordinarily small cosmic recessional velocities within an extended object taken together with the Heisenberg uncertainty relation appears to require an uncertainty in spatial position dependent upon the size of the object. Specifying that such an uncertainty in position be smaller than the size of the object defines a critical size that may provide a fundamental limit distinguishing the realm of objects governed by classical laws from those governed by quantum mechanics. The talk will present an overview of this topic and include derivation of results, including those pertaining to several related phenomena; and specific cases will be discussed.

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