

A new upper bound on collapse models parameters from spontaneous radiation emission.

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Collapse models are phenomenological models where the collapse of the wave function is described through a non linear interaction with an external classic noise. Because of the interaction with this noise, collapse models make different predictions compared to Quantum Mechanics. In the Continuous Spontaneous Localization (CSL) collapse model, the strength of the noise effects is measured by the collapse rate λ . Nowadays, the best upper bound on λ comes from the study of the spontaneous radiation emission from Germanium. In the first part of the talk we review the calculation of the spontaneous radiation emission in the CSL model. In particular, we discuss about some problems which arise when perturbation theory is applied to the lowest perturbative order.

In the second part of the talk we compare this theoretical prediction with new experimental data. As a result, the current upper bound on λ is improved by a few orders of magnitude.

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