

# A new Experimental upper limit on the $\lambda$ parameter

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The Spontaneous Emission of radiation by free electrons phenomenon arises from the direct interaction of a free electron and a fluctuating scalar field, postulated in the framework of Spontaneous Collapse theories as a trigger to obtain the system wave function collapse and solve the dualism problem.

The important role played by this new phenomenon in checking such class of theories is easily understandable considering that its cross-section is a function of  $\lambda$ , a fundamental parameter in the Collapse Master Equations. Nowadays the strongest upper bound on  $\lambda$  is set by the experimental search of spontaneous X-ray emitted by the electrons in a low-energy Ge-based experiment, presented in the pioneering work of Q. Fu. In this work we analyze this result and present a new upper limit on  $\lambda$  parameter as a result of the new analysis done on data published by the IGEX collaboration.

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