The correction to the Fermi's golden rule: implication to particle physics and cosmology

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The transition probability P(T) at the finite time interval,T, is determined by the wave functions and behaves as P(T)= \Gamma T+Pˆd, where \Gamma is derived from the golden rule and Pˆd is the correction term. Pˆd has been considered negligible since Dirac's time, but it was found recently that is not so, by series of studies of the present author and his collaborators. Pˆd has origin in many-body interaction energy, and has intriguing properties. It gives sizable effects in wide area, which are similar to background, and has not been paid attention by researchers. Origins and peculiar properties of Pˆd are explained, and some implications to particle physics and cosmology are given.

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