

Notes on the spontaneous decay

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Suppose that two strongly continuous one-parameter semi-groups of contraction operators are given in the separable Hilbert space and in a specific subspace respectively such that the latter determines a correct exponential decay for all positive t . We develop an asymptotic series under strictly singular perturbation of the infinitesimal generator in the general case. A possible deviation from the exponential decay is then well defined through the remainder-term of the series-expansion. The numerical evaluation of the series will yield criteria by which one can determine if the deviations from the exponential decay can be confirmed by observations.