Trotter–Kato Product Formula: From the Strong to the Trace-Norm Convergence

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Abstract. It is a review of some results of the theory of semigroup approximations by the Trotter–Kato product formulae. It concerns the proof of these formulae and the estimates of the convergence-rate in the operator-norm topology for a class of strongly continuous semigroups. The first result about the trace-norm convergence for the Gibbs semigroups goes back to 1990. Now we are able to obtain an error bound for the product formula approximation in the trace-norm topology.