

## On the trace of some class of semigroup

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In the talk we consider the trace of the semigroup  $e^{-t(A+B)}$ , where  $A^{-1}$  is an operator from Hilbert-Schmidt class and  $B$  is a bounded operator. We prove formula

$$\operatorname{tr}(e^{-t(A+B)} - e^{-tA}) = -\operatorname{tr}(Be^{-tA}) + \frac{t^2}{2} \operatorname{tr}(B^2e^{-tA}) + o(t), \quad t \rightarrow 0+, \quad (1)$$

under some additional assumptions.