



# Commmuting exponentials in dimension at most 3

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Let  $A, B$  be two square complex matrices of dimension at most 3. We show that the following conditions are equivalent i) There exists a finite subset  $U$  included in  $\{2, 3, 4, \dots\}$  such that for every positive integer  $t$  that is not in  $U$ ,  $\exp(tA+B) = \exp(tA)\exp(B) = \exp(B)\exp(tA)$ . ii) The pair  $(A, B)$  has property L of Motzkin and Taussky and  $\exp(A+B) = \exp(A)\exp(B) = \exp(B)\exp(A)$ .

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