

BME Matematikai Intézet

Március 4-en, a H 306 emeleten, 16 órákor

Fumio Hiai (Japán) : Anti Lie-Trotter formula

The well-known Lie-Trotter-Kato product formula can be given as

$$\lim_{p \searrow 0} (A^{p/2} B^p A^{p/2})^{1/p} = \exp(\log A + \log B)$$

in the symmetric form and with a continuous parameter. In this talk we are interested in the complementary question about what happens to the limit of $Z_p := (A^{p/2} B^p A^{p/2})^{1/p}$ for positive operators A, B as p tends to ∞ instead of 0. The limit behavior of Z_p as $p \rightarrow \infty$ is of a rather complicated combinatorial nature, so we have to confine our discussions to the case of A, B being compact operators or more simply matrices. We also touch the limit of $(A^p \# B^p)^{2/p}$ as $p \rightarrow \infty$ where $\#$ denotes the geometric mean for operators:

$$C \# D = C^{1/2} (C^{-1/2} D C^{-1/2})^{1/2} C^{1/2}$$

The talk is based on joint work with K.M.R. Audenaert.

Egy korábbi cikk:

F. Hiai and D. Petz, “**Introduction to Matrix Analysis and Applications**”, Hindustan Book Agency and Springer, 2014.

<http://renyi.hu/~petz/pdf/matrixPD.pdf>