Another Version of Maher’s Inequality

Let $H$ be a separable infinite dimensional complex Hilbert space, and let $L(H)$ denote the algebra of bounded linear operators on $H$ into itself. Let $A = (A_1, A_2, ..., A_n), B = (B_1, B_2, ..., B_n)$ be $n$-tuples of operators in $L(H)$. We define the elementary operator $\Delta_{A,B} : L(H) \hookrightarrow L(H)$ by $\Delta_{A,B}(X) = \sum_{i=1}^{n} A_i X B_i - X$.

In this paper we minimize the map $F_p(X) = \|T - \Delta_{A,B}(X)\|_p^p$, where $T \in \ker \Delta_{A,B} \cap C_p$, and we classify its critical points.

Keywords: Orthogonality, derivation, elementary operators.

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