A NOTE ON "REMARKS ON SOME INEQUALITIES FOR POSITIVE SEMIDEFINITE MATRICES AND QUESTIONS FOR BOURIN"

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Abstract. Let $A_i, B_i \in \mathbb{M}_n$ be positive semidefinite matrices with $A_iB_i = B_iA_i$ ($i = 1, 2, \cdots, m$). Then
\[
\sigma\left(\left(\sum_{i=1}^{m}(A_iB_i)^{1/2}\right)^r\right) \prec_{\text{wlog}} \sigma\left(\left(\sum_{i=1}^{m}A_i\right)^{1/4}\left(\sum_{i=1}^{m}B_i\right)^{1/2}\left(\sum_{i=1}^{m}A_i\right)^{1/4}\right),
\]
where $r \geq 1$. This result is a refinement of M. Hayajneh, S. Hayajneh and F. Kittaneh’s result.


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REFERENCES