

Heinz-Type Inequalities in Hilbert Spaces

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Abstract : In this paper, we are concerned with the further refinements of the Heinz operator inequalities in Hilbert spaces. Our purpose is to derive several new Heinz-type operator inequalities. First, with the help of the Taylor series of some hyperbolic functions, we obtain some refinements of the ordering relations among Heinz means defined by Bhatia with different parameters, which would be more suitable in obtaining the corresponding operator inequalities. Second, we present some generalizations of Heinz operator inequalities. Finally, we give a matrix version of the Heinz inequality for the Hilbert-Schmidt norm.

Keywords : Hilbert space, means inequality, norm inequality, positive linear operator

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