ON A GEOMETRIC PROPERTY OF
POSITIVE DEFINITE MATRICES CONE

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Abstract. We shall discuss the matrix geometric mean for the positive definite matrices. The set of all $n \times n$ matrices with a suitable inner product will be a Hilbert space, and the matrix geometric mean can be considered as a path between two positive matrices. In this paper, we shall obtain a matrix geometric mean inequality, and as an application of it, a property of Riemannian metric space is given. We also obtain some examples related to our result.

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