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Preserver problems on convex combinations of positive elements

In this talk, we study the maps ϕ on positive operators of Schatten p -classes ($1 < p < +\infty$), which preserve the p -norms of convex combinations. On the other hand, we characterize several classes of transformations which preserve the norm of geodesics on positive definite matrices under different Riemannian metrics. These geodesics are naturally the convex combinations of positive definite matrices in these manifolds. Finally, we establish the transformations sending geodesics into geodesics on these Riemannian manifolds and other related results.