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Application of Hilbert's Projective metric on Symmetric Cones

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收稿日期 2004-4-22 修回日期 网络版发布日期 2006-7-14 接受日期 2004-9-2

摘要 Let Ω be a symmetric cone. In this note, we introduce Hilbert's projective metric on Ω in terms of Jordan algebras and we apply it to prove that, given a linear invertible transformation g such that $g(\Omega) = \Omega$ and a real number p , $p > 1$, there exists a unique element $x \in \Omega$ satisfying $g(x) = x^p$.

关键词 [Hilbert's projective metric](#) [Symmetric cone](#)

分类号 [17C15](#)

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Abstract Let Ω be a symmetric cone. In this note, we introduce Hilbert's projective metric on Ω in terms of Jordan algebras and we apply it to prove that, given a linear invertible transformation g such that $g(\Omega) = \Omega$ and a real number p , $p > 1$, there exists a unique element $x \in \Omega$ satisfying $g(x) = x^p$.

Key words [Hilbert's projective metric](#) [Symmetric cone](#)

DOI: 10.1007/s10114-005-0755-6

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