



ON THE CLASSIFICATION OF HYPERBOLIC ISOMETRIES

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We classify the dynamical action of matrices in $SU(p, q)$ using the coefficients of their characteristic polynomial. This generalises earlier work of Goldman for $SU(2, 1)$ and the classical result for $SU(1, 1)$, which is conjugate to $SL(2, \mathbb{R})$. We shall then specialize to the case of $SU(3, 1)$ and will describe the locus of the points where the characteristic polynomials will have repeated roots.

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