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Title:	Quaternionic hyperbolic Fenchel–Nielsen coordinates
Authors:	Gongopadhyay, Krishnendu (/jspui/browse?type=author&value=Gongopadhyay%2C+Krishnendu) Kalane, S.B. (/jspui/browse?type=author&value=Kalane%2C+S.B.)
Keywords:	Hyperbolic space Quaternions Free group representations Character variety
Issue Date:	2019
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Citation:	Geometriae Dedicata, 199(1),pp. 247-271.
Abstract:	Let $Sp(2,1)$ be the isometry group of the quaternionic hyperbolic plane $H^2_{\mathbb{H}}$. An element g in $Sp(2,1)$ is hyperbolic if it fixes exactly two points on the boundary of $H^2_{\mathbb{H}}$. We classify pairs of hyperbolic elements in $Sp(2,1)$ up to conjugation. A hyperbolic element of $Sp(2,1)$ is called loxodromic if it has no real eigenvalue. We show that the set of $Sp(2,1)$ conjugation orbits of irreducible loxodromic pairs is a $(CP^1)^4$ bundle over a topological space that is locally a semi-analytic subspace of \mathbb{R}^{13} . We use the above classification to show that conjugation orbits of 'geometric' representations of a closed surface group (of genus $g \geq 2$) into $Sp(2,1)$ can be determined by a system of $42g-42$ real parameters. Further, we consider the groups $Sp(1,1)$ and $GL(2, \mathbb{H})$. These groups also act by the orientation-preserving isometries of the four and five dimensional real hyperbolic spaces respectively. We classify conjugation orbits of pairs of hyperbolic elements in these groups. These classifications determine conjugation orbits of 'geometric' surface group representations into these groups.
URI:	file:///tmp/mozilla_library0/Gongopadhyay-Kalane2019_Article_QuaternionicHyperbolicFenchelN.pdf (file:///tmp/mozilla_library0/Gongopadhyay-Kalane2019_Article_QuaternionicHyperbolicFenchelN.pdf) http://hdl.handle.net/123456789/2117 (http://hdl.handle.net/123456789/2117)
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