THE ROOTS OF ELEMENTS OF Aut(SH₂)

AMIN MIRZAPOUR AND RASOUL ESKANDARI

Abstract. We study the roots of automorphisms on the Siegel upper half plane of complex dimension three. We use the normal form of any element of $\mathsf{Sp}(2,\mathbb{R})$ under the conjugation in $\mathsf{Sp}(2,\mathbb{R})$ to show that some of automorphisms have roots and that some of them do not have. As an application, we generalize the Siegel unit disk of the same dimension.

Mathematics subject classification (2020): Primary 15A21; Secondary 57S25.
Keywords and phrases: Siegel upper half plane, automorphism, root.

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Paper OaM-17-12

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