

Meeting: 1003, Atlanta, Georgia, SS 33A, AMS Special Session on Topics in Geometric Function Theory, I

1003-30-1442 **Chaohui Zhang*** (czhang@morehouse.edu), Department of Mathematics, Morehouse College,
830 Westview Dr., Atlanta, GA 30314. *Holomorphic family and Bers fiber space.*

Let G be a Fuchsian group acting on \mathbb{H}^2 so that \mathbb{H}^2/G is a compact Riemann surface with genus g , $g \geq 2$. Let $D \subset \mathbb{C}^n$, $n \geq 1$, be a domain with $0 \in D$. Following Bers we can define a holomorphic family of G over D . We prove the following result:

Theorem 1. (i) *If $\dim_{\mathbb{C}} D > 3p - 3$, there is no holomorphic family of G over D that is isomorphic to any Bers fiber space;*

(ii) *If $3p - 3 \geq \dim_{\mathbb{C}} D > 2p - 1$, the holomorphic family is isomorphic to a Bers fiber space $\pi : F(\Gamma) \rightarrow T(\Gamma)$ if and only if $\dim_{\mathbb{C}} D = 3p - 3$ and in this case G and Γ have the same signature $(p, 0; -)$; and*

(iii) *If $\dim_{\mathbb{C}} D = 2p - 1$, the holomorphic family is isomorphic to a Bers fiber space if and only if the family is identified with a subspace of the Bers fiber space $\pi : F(G) \rightarrow T(G)$ that is determined by a hyperelliptic locus in $T(G)$.*

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