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AUGMENTED TEICHMÜLLER SPACES

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The augmented Teichmüller space $\hat{T}$, of a finitely generated Fuchsian group G of the first kind or a conformally finite Riemann surface S with signature, consists of the usual Teichmüller space T together with the regular b-groups on its boundary. The structure of the regular b-groups has been studied in [2] (see also Marden [5] and Maskit [6]). The usual topology on T given by the Bers embedding of T in the space of bounded quadratic differentials has a natural extension to $\hat{T}$. The extension corresponds to horocycles at the regular b-groups. It is discussed in §2. Some of the properties of $\hat{T}$ with this topology are listed below. Detailed proofs will appear elsewhere. A related study is being conducted by Earle and Marden.

1. Properties of $\hat{T}$.

THEOREM 1. *Each element g of the Teichmüller modular group,* Mod, *has a continuous extension to an automorphism of $\hat{T}$.*

The proof of Theorem 1 follows from explicit construction of quasiconformal mappings realizing twist maps and transpositions.

THEOREM 2. *The augmented Riemann space $\hat{R} = \hat{T}/$*Mod *is a compact normal complex space. It is the unique compactification of $R = T/$*Mod *in the sense of Cartan.*

The proof utilizes a correspondence between congruence classes of regular b-groups and flags of subgroups of Mod. The uniqueness of the compactification together with results due to Bers [3] immediately yield

THEOREM 3. *$\hat{R}$ is a projective algebraic variety.*

By studying divergent sequences in $\hat{T}$, we may prove the following conjecture of Ehrenpreis [4].

THEOREM 4. *If T is given some Bers embedding, then the action of* Mod *is of the first kind (i.e. for each $\varphi \in \partial T$, each Euclidean neighborhood N of φ and each n, there is some $\varphi_1 \in N \cap T$ whose orbit meets N in at least n points).*

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