Homeomorphic Analytic Maps into the Maximal Ideal Space of $H^\infty$

Daniel Suárez

Abstract. Let $m$ be a point of the maximal ideal space of $H^\infty$ with nontrivial Gleason part $P(m)$. If $L_m : \mathbb{D} \to P(m)$ is the Hoffman map, we show that $H^\infty \circ L_m$ is a closed subalgebra of $H^\infty$. We characterize the points $m$ for which $L_m$ is a homeomorphism in terms of interpolating sequences, and we show that in this case $H^\infty \circ L_m$ coincides with $H^\infty$. Also, if $I_m$ is the ideal of functions in $H^\infty$ that identically vanish on $P(m)$, we estimate the distance of any $f \in H^\infty$ to $I_m$. 

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