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Topological rigidity in conformal dynamics.

In 2009 M. Kapovich, following up on a line of research from the late '70s (Bowen, Sullivan, Tukia, Bishop-Jones, Yue, Xie), proved that for a geometrically finite Kleinian group in $\text{Isom}(\mathbb{H}^n)$, if the topological dimension of the limit set equals its Hausdorff dimension, then the limit set is a geometric sphere. We present results from joint-work with David Simmons (Ohio State) and Mariusz Urbański (North Texas) that extend Kapovich's theorem to certain geometrically infinite groups, and prove analogous rigidity results on the rational maps side of Sullivan's dictionary. Time permitting, we present our generalization to analogues of Kleinian group actions on infinite-dimensional real hyperbolic space, where finite-dimensional arguments break down and the proof is necessarily far more intricate. (Received January 30, 2014)