Uniqueness of the welding problem with fractal interfaces

by

Wei Qian
City University of Hong Kong

We give a simple set of geometric conditions on curves η, $\widetilde{\eta}$ in $\mathbb{H}$ from 0 to ∞ so that if $\varphi\colon \mathbb{H} \to \mathbb{H}$ is a homeomorphism which is conformal off η with $\varphi(\eta) = \widetilde{\eta}$ then φ is a conformal automorphism of $\mathbb{H}$. Our result applies to the setting where the interface η is not the boundary of a Hölder domain or even a connected domain. Our motivation comes from the fact that it is possible to apply our result to random conformal welding problems related to the Schramm-Loewner evolution (SLE) and Liouville quantum gravity (LQG). This is based on a joint work with Jason Miller.