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A functional-analytic proof of the conformal welding theorem

The conformal welding theorem states that any quasisymmetric self-map of the circle can be factored as $g^{-1} \circ f$, where f is a conformal map of the unit disk, and g is a conformal map of the exterior to the unit disk.

In this talk, I describe a new functional-analytic proof of the conformal welding theorem, which does not require the existence of solutions to the Beltrami differential equation. The proof uses Grunsky matrices and a representation of quasisymmetries as composition operators on a certain Hilbert space.