

Contact graphs of Kleinian and Julia gaskets

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A circle packing on the Riemann sphere is a collection of round disks with pairwise disjoint interiors. Given a circle packing, its contact graph is constructed by assigning a vertex for each disk, and an edge connecting two vertices if the corresponding disks touch. A gasket is the homeomorphic image of the complement of an infinite circle packing with connected contact graph, e.g. the well-known Apollonian gasket. Many gaskets arise as both limit sets of Kleinian groups and Julia sets of rational maps, and in each case, the action of the Kleinian group or the rational map induces an action on the contact graph. In this talk, I will discuss what Kleinian groups possess gasket limit sets, and what rational functions (with a focus on degree 2) possess gasket Julia sets. I will also explain how to use the induced action on contact graphs to show that the gasket Julia set of a quadratic rational map is never quasiconformally homeomorphic to the gasket limit set of any geometrically finite Kleinian group.

(joint work with Yusheng Luo)