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Plumbing.

Start with one or two Riemann surfaces which have hyperbolic metrics of finite area: finitely punctured surfaces. Classical plumbing is to choose (i) a pair of the punctures p,q, (ii) small neighborhoods of them, and (iii) cut the neighborhoods out and join their boundaries together, thus creating either a handle, or joining two surfaces together. When this process is done precisely, it depends on an analytic parameter t. For small values of abs(t), one obtains a holomorphic family S(t) of surfaces. The process can be carried out for any number of puncture-pairs. These surfaces are connected and all have the same topological type. Are they conformally distinct from each other? This is necessary to know if one wants to "open-up" noded surfaces on the boundary of a Teichmueller space. Do the plumbing t-parameters have analytic extensions so as to provide global holomorphic parameters for Teichmueller space?

The answers will be provided in the talk, which will be a short exposition of part of ongoing joint work with Clifford Earle. (Received June 23, 2010)