Leaf topology of codimension one minimal hyperbolic foliations on closed 3-manifolds

Carlos Meniño Cotón

Universidade de Vigo e CITMAga

A foliation by surfaces is called hyperbolic if there exists a leafwise continuous Riemannian metric of constant negative curvature. Lots of codimension one foliations on 3-manifolds are hyperbolic by Candel's Uniformization Theorem (for instance, if no invariant measure exists). It is interesting to understand where these foliations arise (examples) and how complicated the topology of its leaves can be. A foliation is called minimal if every leaf is dense in the ambient space. In this talk we deal with the question about the topology of leaves of minimal hyperbolic foliations on closed 3- manifolds, more precisely we show that every open surface can be realized as a leaf of some minimal hyperbolic foliation whose generic leaf is a plane and every open surface whose isolated ends are accumulated by genus can be realized as the leaf of some minimal hyperbolic foliation whose generic leaf is a Cantor tree or a Loch Ness Monster. Our examples impose some conditions on the ambient topology (only Seifert or graph manifolds) and transverse regularity (at most C^1) and it is known that some closed 3-manifolds do not admit minimal hyperbolic foliations with rich leaf topology. This suggests an interesting interplay between leaf topology of minimal hyperbolic foliations and the ambient topology of closed 3-manifolds that is not yet well understood.

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