

Embedding some open Riemann surfaces into the complex plane

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It is a long-standing open problem whether every open Riemann surface (i.e. every one-dimensional Stein manifold) admits a proper holomorphic embedding into the complex plane.

In this talk, we enlarge the class of examples for which a positive answer is known. More precisely, we will show that the Riemann sphere, with a non-empty countable closed subset containing at most two accumulation points removed, as well as any compact Riemann surface of genus one, with a non-empty countable closed subset containing at most one accumulation point removed, are all embeddable into the plane.

Our construction is inspired by a result of Sathaye stating that every smooth affine algebraic curve of genus one is a plane algebraic curve.

This is joint work with Frank Kutzschebauch.