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Riemann origami and convergence of pseudo-Anosov sequences

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(joint work with Toby Hall)

It is common to construct surfaces by specifying identifications on the sides of a polygon $P \subset \mathbb{R}^2$. In this talk surfaces built in this way will be discussed where infinitely many identifications of subarcs on the boundary of P are allowed. In these cases, both the metric and the complex structures - which in the finite case are easily obtainable - have to be studied more carefully. A sufficient condition to ensure the quotient is a compact Riemann surface is presented, as well as uniformity condition (a modulus of continuity) which allows one to decide whether a sequence of such constructions converges. As an application, the convergence of certain sequences of pseudo-Anosov maps is discussed. The main tecnical ingredients come from the geometric theory of functions, in particular, from the theory of extremal length.