Mathematisches Kolloquium

Higher rank hyperbolicity in spaces of nonpositive curvature
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Abstract. The large scale geometry of Gromov hyperbolic metric spaces exhibits many distinctive features, such as the stability of quasi-geodesics (the Morse Lemma), the linear isoperimetric filling inequality for 1-cycles, the visibility property, and the homeomorphism between visual boundaries induced by a quasi-isometry. After briefly reviewing these properties, I will describe a number of closely analogous results for spaces of rank $n > 1$ in an asymptotic sense, under some weak assumptions reminiscent of non-positive curvature. A central role is played by a suitable class of n-dimensional surfaces of polynomial growth of order n, which serve as a substitute for quasi-geodesics.