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Ghys, Étienne (F-ENSLY)

Le cercle à l'infini des surfaces à courbure négative. (French) [The circle at infinity of negatively curved surfaces]

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Let S be a negatively curved smooth oriented surface and $\widetilde{S}$ be its universal covering space. The centers of horocycles form the circle at infinity $\partial\widetilde{S}$. This paper is an excellent survey on the recent progress concerning the action of the fundamental group Γ of S on the circle at infinity $\partial\widetilde{S}$.

The reader will understand that this subject is related to a number of fields of mathematics: the boundary of the Cayley graph of a hyperbolic group, measurable dynamics and conformal dynamics, bounded cohomology of a surface group, the bounded Euler class and representation in $\mathrm{Diff}(S^1)$, the Milnor-Wood inequality for flat S^1-bundles, qualitative theory of codimension-one foliations, dynamics of geodesic flow, regularity and rigidity of the Anosov foliations, transversely Lorentzian structures, the differentiability of the action of Γ on $\partial\widetilde{S}$, the domain of definition of the Godbillon-Vey invariant, piecewise linear homeomorphisms of the circle, and topological invariance of the Godbillon-Vey invariant.

Reviewed by *Takashi Tsuboi*