Bern-Fribourg Graduate Seminar

a seminar for Master and PhD students

Thursday 22nd February, 2024: 17:15 - 18:00

Room B7, Exakte Wissenschaften, Bern

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Injective hulls and higher rank hyperbolicity

Abstract

We introduce the notions of asymptotic rank and injective hulls before investigating a coarse version of Dress' $2(n+1)$-inequality characterising metric spaces of combinatorial dimension at most n. This condition, referred to as (n, δ)-hyperbolicity, reduces to Gromov's quadruple definition of δ-hyperbolicity for $n = 1$. The ℓ_∞ product of n δ-hyperbolic spaces is (n, δ)-hyperbolic and, without further assumptions, any (n, δ)-hyperbolic space admits a slim $(n+1)$-simplex property analogous to the slimness of quasi-geodesic triangles in Gromov hyperbolic spaces. Using tools from recent developments in geometric group theory, we look at some examples and show that every Helly group of asymptotic rank n acts geometrically on some (n, δ)-hyperbolic space. Joint work with Urs Lang.