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Title:	Uniform Poincaré inequalities on measured metric spaces
Authors:	Neelakantan Memana, Gautam (/jspui/browse?type=author&value=Neelakantan+Memana%2C+Gautam) Maity, Soma (/jspui/browse?type=author&value=Maity%2C+Soma)
Keywords:	Metric spaces Poincaré inequalities
Issue Date:	2022
Publisher:	Springer Nature
Citation:	Manuscripta Mathematica, 01436-5.
Abstract:	Consider a proper geodesic metric space $(X, d)$ equipped with a Borel measure $\mu$ . We establish a family of uniform Poincaré inequalities on $(X, d, \mu)$ if it satisfies a local Poincaré inequality $P_{loc}$ , and a condition on the growth of volume. Consequently, if $\mu$ is doubling and supports $P_{loc}$ then it satisfies a uniform $(\sigma, \beta, \sigma)$ -Poincaré inequality. If $(X, d, \mu)$ is a Gromov-hyperbolic space, then using the volume comparison theorem in Besson et al. (Curvature-free Margulis lemma for Gromov-hyperbolic spaces, 2020), we obtain a uniform Poincaré inequality with the exponential growth of the Poincaré constant. Next, we relate the growth of Poincaré constants to the growth of discrete subgroups of isometries of $X$ , which act on it properly. We show that if $X$ is the universal cover of a compact $CD(K, \infty)$ space with $K \leq 0$ , it supports a uniform Poincaré inequality, and the Poincaré constant depends on the growth of the fundamental group of the quotient space.
Description:	Only IISER Mohali authors are available in the record.
URI:	<a href="https://doi.org/10.1007/s00229-022-01436-5">https://doi.org/10.1007/s00229-022-01436-5</a> ( <a href="https://doi.org/10.1007/s00229-022-01436-5">https://doi.org/10.1007/s00229-022-01436-5</a> ) <a href="http://hdl.handle.net/123456789/5228">http://hdl.handle.net/123456789/5228</a> ( <a href="http://hdl.handle.net/123456789/5228">http://hdl.handle.net/123456789/5228</a> )
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