



# Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali / Thesis & Dissertation / Doctor of Philosophy (PhD) / PhD-2014

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/1569>

Title:	Hyperbolicity, Complexes of Groups and Cannon-Thurston Maps
Authors:	Krishna, S.
Keywords:	Hyperbolic metric spaces Cannon-Thurston maps Pullbacks of metric bundles Palindromic width for HNN extensions
Issue Date:	Feb-2020
Publisher:	IISER Mohali
Abstract:	Complexes of groups describe the actions of groups on simply connected polyhedral complexes. These are a natural generalization of the concept of graphs of groups introduced by Bass and Serre. In this thesis, we address some questions associated to the complexes of groups. We first show that the palindromic width of HNN extension of a group by proper associated subgroups and the palindromic width of the amalgamated free product of two groups via a proper subgroup is infinite (except when the amalgamated subgroup has index two in each of the factors). As a corollary of these, the palindromic width of the fundamental group of a graph of groups is mostly infinite. Next, we prove a limit intersection theorem for a relatively hyperbolic group $G$ that admits a decomposition into a finite graph of relatively hyperbolic groups structure with quasi-isometrically (qi) embedded condition. We prove that the set of conjugates of all the vertex and edge groups satisfy the limit set intersection property for conical limit points. Finally, we study the existence of Cannon-Thurston maps for certain subfamily complex of hyperbolic groups. Let $G$ be the fundamental group of a complex of hyperbolic groups $G(Y)$ with respect to a maximal subtree $T$ of $Y$ . Suppose $G(Y)$ is developable and the monomorphisms $G_e \rightarrow G_i(e)$ and $G_e \rightarrow G_t(e)$ have finite index images in the target groups. Let $Z$ be a connected subcomplex of $Y$ and $H$ be its fundamental group with respect to a maximal subtree $T_1 \sqsubset T$ of $Z$ . If the natural homomorphism $i : H \rightarrow G$ is injective and the natural map from the development of $G(Z)$ to that of $G(Y)$ is a qi-embedding, then $H$ is also hyperbolic and $i$ admits a Cannon-Thurston map $\partial i : \partial H \rightarrow \partial G$ .
URI:	<a href="http://hdl.handle.net/123456789/1569">http://hdl.handle.net/123456789/1569</a>
Appears in Collections:	PhD-2014

## Files in This Item:

File	Description	Size	Format	
<a href="#">PH14020.pdf</a>		792.5 kB	Adobe PDF	<a href="#">View/Open</a>

Show full item record



Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.

## Admin Tools

Edit...

Export Item

Export (migrate) Item

Export metadata