
Discrete Analysis Seminar

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Tree fitting problem and hyperbolic distances

The tree fitting problem is to fit a given metric (on a finite space) by a tree metric, which is “close” to the original metric. Intuitively, the closeness of the possible output depends on the tree-likeness of the given input, and the (Gromov δ)-hyperbolicity has been considered as a proxy measure of how tree-like a space is, as tree is considered as a 0-hyperbolic space. In this talk, we start with formulating the tree fitting problem with introducing recent developments, and we present its relation between the hyperbolicity. To be specific, we define a vector of hyperbolicity values over all triples of points and present a result that the ℓ_1 error of the output embedding can be bounded in terms of the ℓ_1 norm of the hyperbolicity vector. We also discuss how this formulation allows us to interpret the other results, including the classical tree fitting result of Gromov. Based on joint work with Anna Gilbert.

Date: 14th March, 2024

Time: 1:30pm – 2:30pm

Location: 262, Science Building



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