Minimal fillings and minimal metric hulls of infinite metric spaces

Alexey Eremin (Moscow State University)

Abstract

The problem concerning minimal fillings of finite metric spaces was posed by Ivanov and Tuzhilin. The objective is to find a weighted graph of minimum weight among all weighted graphs joining the points of a given finite metric space provided that for any two points in the metric space the distance between them is not greater than the weight of the shortest path connecting them in the graph. We discuss possible generalizations of this problem to the case of infinite metric spaces. In the first part of this talk we discuss properties of existing notion of minimal filling in the case of infinite metric space and present some limit theorems. In the second part we introduce new notion of minimal metric hull of metric space (which in some natural sense generalizes notion of minimal filling) and discuss it's properties and question arising.