

The Cheeger Cut and Cheeger Problem in Metric Graphs

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Abstract:

For discrete weighted graphs there is sufficient literature about the Cheeger cut and the Cheeger problem, but for metric graphs there are few results about these problems. Our aim is to study the Cheeger cut and the Cheeger problem in metric graphs. For that, we need to introduce the concept of total variation and perimeter in metric graphs, which takes into account the jumps at the vertices of the functions of bounded variation and we also give an integration by parts formula. Moreover, we study the eigenvalue problem for the minus 1-Laplacian operator in metric graphs, whereby we give a method to solve the optimal Cheeger cut problem.