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The Multitours and the Polytops of the Binary Trees

The minimal fillings of finite metric spaces are an object that appeared as a generalization of the concepts of shortest tree and a minimal filling in the sense of Gromov. It is known that the weight of a minimal filling of a given type can be found by linear programming and by so-called multitours technique. Combining both approaches, the some results were obtained which will be discussed in this report.

A description of the polytop and an explicit formula for the weight of the minimal filling of the “snake-type” binary tree is obtained. An explicit formula for the weight of the minimal filling of the binary tree with 3 moustaches is obtained. It is proved that the multiplicity of an irreducible multitour does not exceed 4 for any binary tree consisting of four so-called sprouts.

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