



istanbul matematiksel bilimler merkezi
istanbul center for mathematical sciences

Istanbul Discrete Mathematics Meetings

AN INTRODUCTION TO APPROXIMATION ALGORITHMS

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Abstract

In the first part of my talk, I will present a brief introduction to approximation algorithms. In addition to introducing some fundamental notions and examples from the topic, I will try to visit a few of the common techniques used in the design of approximation algorithms.

In the second part of my talk, I will describe a sublinear-time asymptotic approximation scheme for the bin packing problem. The bin packing problem is defined as follows: given a set of n items with sizes $0 < w_1, w_2, \dots, w_n \leq 1$, find a packing of these items into minimum number of unit-size bins possible. I will present an algorithm A_ϵ , for any $\epsilon > 0$, that has sampling access to the input instance and outputs a value k such that $C_{\text{opt}} \leq k \leq (1 + \epsilon) \cdot C_{\text{opt}} + 1$, where C_{opt} is the cost of an optimal solution. (The second part of the talk is based on a joint publication with Petra Berenbrink and Christian Sohler.)

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Time: 11:00

Place: IMBM Seminar Room, Boğaziçi University