

POLYNOMIAL TECHNIQUE IN COMBINATORIAL OPTIMIZATION

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ABSTRACT. It is well known that there are many different ways to pose combinatorial optimization problems using polynomials of one or several variables. However, in many applications we need to employ the algebraic polynomials of very high degree. This leads to numerical instability of corresponding schemes.

In this talk we show that some difficult combinatorial problems can be solved by *trigonometric* polynomials. We consider two examples: the knapsack problem and the problem of boolean optimization with linear constraints. In both cases we provide the algorithms with upper complexity bounds.