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«On the complexity of monomials systems computation by composition circuits».

Abstract. The complexity of computation of systems of monomials by composition circuits is studied. In such a model, the complexity is understood as the smallest number of composition operations required for computation of a system of monomials. The composition operation is a generalization of the multiplication operation. It delivers a simple and exact solution for exponentiation problem. For the considered model, the following results were obtained.

1. For a system of two monomials, the exact value of complexity is established.
2. For a system of p monomials in two variables, the complexity is found to within the term which grows as p .
3. An asymptotic formula for one function of Shannon type is established. This result, with some restrictions, was successfully transferred to the classical model for computing systems of monomials.
4. Under certain restrictions, the growth asymptotic of the Shannon function is found.