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AN APPROXIMATION ALGORITHM FOR QUADRATIC DYNAMIC SYSTEMS BASED ON N. CHOMSKY'S GRAMMAR FOR TAYLOR'S FORMULA

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A. A. Azamov, M. A. Bekimov

Single-step methods for the approximate solution of the Cauchy problem for dynamic systems are discussed. It is shown that a numerical integration algorithm with a high degree of accuracy based on Taylor's formula can be proposed in the case of quadratic systems. An explicit estimate is given for the remainder term. The algorithm is based on N. Chomsky's generative grammar for the language of terms of Taylor's formula.

Keywords: dynamic system, quadratic system of equations, Cauchy problem, numerical solution, Taylor's formula, remainder term, error estimate, algorithm, context-free grammar.

A. A. Azamov, Dr. Phys.-Math. Sci., Prof., National University of Uzbekistan named after M. Ulugbek, 700174 Tashkent, Uzbekistan, e-mail: abdulla.azamov@gmail.com .

M. A. Bekimov, PhD Researcher, National University of Uzbekistan named after M. Ulugbek, 700174 Tashkent, Uzbekistan, e-mail: mansu@mail.ru .

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