1163-65-1073 **Hristo V Kojouharov***, The University of Texas at Arlington, Department of Mathematics, 411 South Nedderman Drive, PKH 478, Arlington, TX 76019-0408, and **Souvik Roy**, **Madhu Gupta**, **Fawaz Alalhareth** and **John M Slezak**. *Higher-order modified nonstandard finite difference methods for autonomous differential equations.*

A new class of nonstandard finite difference methods for solving autonomous differential equations are constructed and analyzed. The new methods are based on the nonstandard versions of the theta method and the second-order Runge-Kutta method, among others; but, in addition, they have higher-order of accuracy. A set of numerical simulations is presented that supports the theoretical results. (Received September 14, 2020)