1067-Z1-683 **Mohsen Mahmood Doroodchi*** (mdoroodchi@stritch.edu), 6801 N. Yates Rd., Milwaukee, WI 53217, **Habibolla Latifizadeh** (latifizadehhabib@gmail.com), Shiraz University of Technology, Moddares Blvd., Shiraz, Fars, Iran, and **Esmail Hesameddini** (Hesameddini@sutech.ac.ir), Shiraz University of Technology, Moddares Blvd., Shiraz, Fars, Iran. *A novel method for solving nonlinear equations.*

The confluence of modern mathematics and symbolic computation has posed a challenge to develop methodologies capable of handling strongly nonlinear equations which cannot be successfully dealt with by classical methods. The current proposed method is uniquely qualified to address this challenge. The idea of Variational Iteration Method (VIM) is to construct a correction functional by a general Lagrange multiplier which can be identified optimally via the variational theory. The novel technique proposed in this paper provides a sequence of functions which converges to the exact solution of the nonlinear problem without requiring small parameters as the perturbation techniques and the general Lagrange multiplier in Variational Iteration Method. As an advantage of the method over decomposition procedure of Adomian, it provides the solution of the problem without calculating Adomian's polynomials. This technique solves the problem without any need to discretization of the variables. Therefore, it is not affected by computation round-off errors. It is capable of greatly reducing the volume of the computational work compared to classical methods while still maintaining high accuracy of the numerical solution. (Received September 13, 2010)