

1155-34-527

**Zachariah Sinkala\*** ([zachariah.sinkala@mtsu.edu](mailto:zachariah.sinkala@mtsu.edu)), Department of Mathematical Sciences, Middle Tennessee State University, Murfreesboro, TN 37132. *Application of the one-step method to parameter estimation in Glioblastoma ode model.*

In this paper, we study the glioblastoma ordinary differential equations model. We use the so-called one-step method (for example, Le Cam's) for parameter estimation. The most popular method for parameter estimation is nonlinear least squares estimator, which requires the use of a multi-step iterative algorithm and repetitive numerical integration of the ODE system. The one-step method starts from a preliminary a consistent estimator of the parameter of interest and next into an asymptotic equivalent of the least-squares estimator through a numerically straightforward procedure. We demonstrate the performance of the one-step estimator compared with traditional technique (nonlinear least estimator) using real glioblastoma data. The method does parameter estimate values and parameters intervals estimate. The preliminary consistent estimator that we use depends on nonparametric smoothing. It is also data dependent for choosing its tuning parameter. The advantage of this approach, it is easy to implement practically. (Received January 21, 2020)