

1163-34-654

Dat Cao, Department of Mathematics and Statistics, Minnesota State University, Mankato, **Luan Hoang*** (luan.hoang@ttu.edu), Department of Mathematics and Statistics, Texas Tech University, 1108 Memorial Circle, Lubbock, TX 79409-1042, and **Thinh Kieu**, Department of Mathematics, University of North Georgia, Gainesville Camp. *Asymptotic Expansions for Decaying Solutions of Dissipative Differential Equations.*

We study the precise asymptotic behavior of a non-trivial solution that converges to zero, as time tends to infinity, of dissipative systems of nonlinear ordinary differential equations. The nonlinear term of the equations may not be smooth. We obtain an infinite series asymptotic expansion, as time goes to infinity, for the solution. This series expansion provides large time approximations for the solution with the errors decaying exponentially at any given rates. Our result applies to different classes of non-linear equations that have not been dealt with previously. (Received September 10, 2020)