1154-65-228   **Qin Sheng*** (`qin_sheng@baylor.edu`), Department of Mathematics, Casper, Baylor University, Waco, TX 76798-7328. *A review and expectation of the numerical stabilities for nonlinear Kawarada equations.* Preliminary report.

This talk concerns the numerical stability of the nonlinear and highly singular quenching type partial differential equation problems. Utilizing one-dimensional sample problems, we show important physical backgrounds and characteristics of their solutions. Standard Crank-Nicolson schemes are used. While traditional linear stability analysis is accomplished by freezing the underlying source functions of the reaction-diffusion equations, the exploration of the nonlinear stability is proposed and carried out based on proper conservations. Interactive discussions are anticipated throughout this talk over aforementioned approaches. Simulation examples will be provided. (Received August 25, 2019)