1125-VC-1827   **Ramanjit K. Sahi*** (`sahir@apsu.edu`), **Chenchutta D. Jackson** and **Samuel N. Jator**.
Using continued fractions with logarithmic basis functions to overcome singular points via a nonlinear one-step method. Preliminary report.

Many numerical methods based on rational interpolation have been successful in finding numerical solution of singular initial value problems (IVPs). In this study, we develop a special rational interpolation function expressed as a finite continued fraction with logarithmic basis functions to solve singular IVPs. Numerical experiments performed show that the nonlinear one-step method based continued fractions is more accurate than improved Euler's method. (Received September 19, 2016)

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