2 point block backward difference method for solving Riccati type differential problems

ABSTRACT

A two point block backward difference method is established to solve Riccati differential equations directly. Based on a predictor-corrector two point block backward difference method (2PBBD), a code is developed using a set of integration coefficients that eliminates the need to be calculated at every step change. The method requires calculating the integration coefficients only once in the beginning. The 2PBBD has an added advantage of a recurrence relationship between coefficients of different orders which provides a more elegant algorithm. The recurrence relationship between coefficients also reduces the computational cost.

Keyword: 2 point block backward difference method; Riccati differential equations