

Cross Matrix with Vectors

Abstract

This is a sample of a cross matrix with matrices, a column vector, and a row vector.

By introducing new coefficients α_{-1}^{\sim} and enhancing the retention of results from previous one-step RKC calculations, the computational overhead remains almost unchanged when compared to the two-step RKC method. However, the inclusion of α_{-1}^{\sim} grants us extra maneuverability for adjusting ω_1 . Consequently, the coefficients η , ω_0 , and ω_1 in the NTRKC scheme exhibit slight deviations from those of the one-step RKC method. In the context of NTRKC, the modulation of the damping parameter ε and ω_1 serves to shape the stabilizing domain. Higher values of ε and ω_1 entail a trade-off between domain width and length, favoring a wider region at the expense of domain length. Conversely, lower values of ε and ω_1 lead to a more elongated yet narrower stabilizing domain. Notably, NTRKC demonstrates superior stabilizing domain characteristics when compared to the two-step RKC method, yielding heightened numerical accuracy. In the subsequent section dedicated to stabilizing domain analysis, we will delve further into this topic, providing insights and presenting two distinct sets of coefficients.