

1077-39-539

Fei Xue* (xue@hartford.edu), Department of Mathematics, University of Hartford, West Hartford, CT 06117, and **Harry Gingold** (gingold@math.wvu.edu), Department of Mathematics, West Virginia University, Morgantown, WV 26506-6310. *Asymptotic summation of right almost diagonal difference systems.*

We derived a new technique for the asymptotic summation of linear systems of difference equations $Y(t+1) = (D(t) + R(t))Y(t)$. A fundamental solution $Y(t) = \Phi(t)(I + P(t))$ is constructed in terms of a product of two matrix functions. The first function $\Phi(t)$ is a product of the diagonal part $D(t)$. The second matrix $I + P(t)$, is a perturbation of the identity matrix I . Conditions are given on the matrix $D(t) + R(t)$ that allow us to represent $I + P(t)$ as an absolutely convergent resolvent series without imposing stringent conditions on $R(t)$. (Received September 06, 2011)