

Dichotomy and almost automorphic solution of difference system

Castillo, Samuel

Pinto, Manuel

We study almost automorphic solutions of recurrence relations with values in a Banach space V for quasilinear almost automorphic difference systems. Its linear part is a constant bounded linear operator A defined on V satisfying an exponential dichotomy. We study the existence of almost automorphic solutions of the non-homogeneous linear difference equation and to quasilinear difference equation. Assuming global Lipschitz type conditions, we obtain Massera type results for these abstract systems. The case where the eigenvalues λ verify $|\lambda| = 1$ is also treated. An application to differential equations with piecewise constant argument is given.