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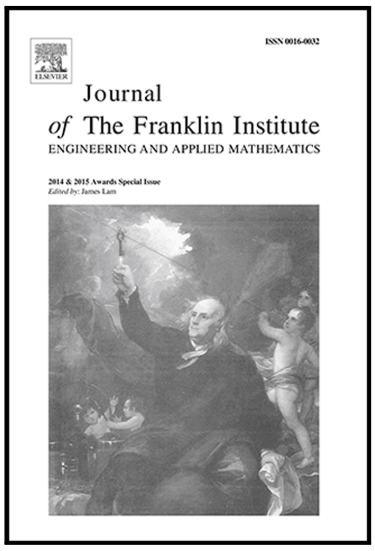

Delay-independent stability conditions for a class of nonlinear difference systems

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Highlights

- A new approach to Lyapunov–Krasovskii functionals constructing is proposed for a class of difference systems with nonlinearities of a sector type and time-delay.
- Conditions of preservation of the asymptotic stability under the digitization of nonlinear difference-differential systems are obtained.
- Delay-independent asymptotic stability conditions and estimates of the convergence rate of solutions for difference systems are derived.
- The impact of nonstationary perturbations with zero mean values on the stability of the zero solution is investigated.

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