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**The iterative solution to discrete-time $H_\infty$ control problems for periodic systems.** (English)

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Summary: This paper addresses the problem of solving discrete-time $H_\infty$ control problems for periodic systems. The approach for solving such a type of equations is well known in the literature. However, the focus of our research is set on the numerical computation of the stabilizing solution. In particular, two effective methods for practical realization of the known iterative processes are described. Furthermore, a new iterative approach is investigated and applied. On the basis of numerical experiments, we compare the presented methods. A major conclusion is that the new iterative approach is faster than rest of the methods and it uses less RAM memory than other methods.

**MSC:**

93C55 Discrete-time control/observation systems
65Q30 Numerical aspects of recurrence relations
93D15 Stabilization of systems by feedback
93B36 $H^\infty$-control
93E20 Optimal stochastic control

**Keywords:**

$H_\infty$ optimal control problem; generalized Riccati equation; periodic systems; stabilizing solution

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