The H_∞ algebraic Riccati equations arising in LQ Zero-Sum Stochastic Differential Games

Ivelin G. Ivanov[1], Ivan G. Ivanov[2]
[1] College Dobrich, Shoumen University, Shoumen, Bulgaria
iwelin.ivanow@gmail.com
[2] Faculty of Economics and Business Administration, Sofia University
"St. Kl. Ohridski",
125 Tzarigradsko chaussee blvd., bl. 3, Sofia 1113, Bulgaria
College Dobrich, Shoumen University, Shoumen, Bulgaria
i_ivanov@feb.uni-sofia.bg

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A generalized algebraic Riccati equation arising in stochastic control with indefinite quadratic part is considered. Iterative methods for computing a matrix sequence [1,2], which converges to the stabilizing solution of the considered type of Riccati equations with indefinite quadratic parts and convergence properties of these methods are studied. Computer realizations of the presented methods are numerically compared. Based on the experiments the main conclusion is the Lyapunov iteration is faster than the Riccati iteration because these methods carry the same number of iterations. The iterative methods are numerically compared and investigated.

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