The Nash equilibrium in open loop linear quadratic games for positive systems [1]

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We consider two-player linear differential games for positive linear systems with an open loop information structure. The Newton method to obtain the stabilizing solution of a corresponding Riccati equation is presented in the literature. We propose a new iterative method, where the Sylvester iteration to a decoupled Riccati equation is applied. The convergence properties of this modification are investigated and the sufficient condition to apply the modification is derived. The performances of the proposed algorithm are illustrated on some numerical examples.

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