

Strong Nash Equilibrium in Stochastic Games

Lidia Grauer

e-mail: grauer_lidia@pochtamt.ru
Saint-Petersburg State University
Faculty of Applied Mathematics and Control Processes
RUSSIA

KeyWords: Stochastic game, stage game, behavior strategy, regularized game, strong Nash Equilibrium

ABSTRACT

The stochastic game on the infinite graph tree is considered. At each stage one of the given finite games in normal form is played. Each stage game could be next with some probability that depends on the current stage game and realized strategy profile. The subtree of cooperative trajectories is defined and payoff redistribution along subtree's paths is suggested. A regularization of the stochastic game is considered and a strong Nash equilibrium in the regularized game is constructed.

References

1. Berge, C. (1958). *Theorie des graphes et ses applications*. Paris: Dunod (in French)
2. Kuhn, H.W. (1953) Extensive games and the problem of information. *Annals of Mathematics Studies*, 28, pp. 193-216
3. Owen, G. (1986). *Game Theory*. W.B. Saunders Company. Philadelphia-London-Toronto
4. Petrosjan, L.A., L.V. Grauer (2002). Equilibrium in multistage games. *International Game Theory Review*, vol. 4(3), pp. 255-264