

Povzetek. V delu obravnavamo teorijo večkrakih banditov. Večkraki bandit je končna družina neodvisnih slučajnih procesov, ki nam v času vračajo nagrado. Nagrade, ki jih pričakujemo v prihodnosti, imajo v sedanjosti manjšo vrednost. Zaradi tega dejstva je možno iskati strategije, ki nam obljubljajo največje matematično upanje celotne nagrade.

Najprej se spoznamo z različnimi oblikami primerov, nato obravnavamo problem za diskretne in zvezne slučajne procese ter rešimo nekaj na začetku omenjenih primerov.

Math. Subj. Class. (1991): 60G40, 60K10.

Key words: Multi-armed bandits, Gittins' indices, multiparameter stochastic processes, optimal control, optional increasing path.

4 LITERATURA

- [1] BELLMAN, R. (1957). *Dynamic Programming*. Princeton University Press, Princeton, NJ.
- [2] CAIROLI, R. and DALANG, R.C. (1996). *Sequential stochastic optimization*. Wiley, New York.
- [3] GRIMMETT, G.R. and STIRZAKER, D.R. (1992). *Probability and Random Processes*, (2nd edn). Clarendon Press, Oxford.
- [4] GITTINS, J.C. (1989). *Multi-armed Bandit Allocation Indices*. Wiley, New York.
- [5] JACOD, J. and SHIRYAEV, A.N. (1987). *Limit theorems for stochastic processes*. Springer, Berlin.
- [6] KARATZAS, I. (1984). Gittins indices in the dynamic allocation problem for diffusion processes, *Ann. Probab.*, **12**, 173-192.
- [7] KASPI, H. and MANDELBAUM, A. (1995). Lévy bandits: Multi-armed bandits driven by Lévy processes, *Ann. Appl. Probab.*, **5**, 541-565.
- [8] MANDELBAUM, A. (1986). Discrete multiarmed bandits and multiparameter processes, *Probab. Theory Related Fields*, **71**, 129-147.
- [9] MANDELBAUM, A. (1987). Continuous multi-armed bandits and multiparameter processes, *Ann. Probab.*, **15**, 1527-1556.
- [10] MANDELBAUM, A. (1988). Navigating and stopping multi-parameter Bandit Processes, *IMA Vol. 10, Stochastic Differential Systems, Stochastic Control Theory and Applications*, Flemming, W. and Lions, P. L., Eds. Springer-Verlag, New York.
- [11] MANDELBAUM, A., SHEPP, L.A. and VANDERBEI, R.J. (1990). Optimal switching between a pair of brownian motions, *Ann. Probab.*, **18**, 1010-1033.
- [12] MANDELBAUM, A. and VANDERBEI, R.J. (1994). Brownian bandits, *Progr. Probab.*, **34**, Birkhäuser Boston, Boston, MA.
- [13] ROSENBLATT, M. (1974). *Random Processes*, (2nd edn). Springer-Verlag, New York.
- [14] SHEDLER, G. S. (1987). *Regeneration and Networks of Queues*. Springer-Verlag, New York.
- [15] WEBER, R. (1992). On the Gittins index for multiarmed bandits, *Ann. Appl. Probab.*, **2**, 1024-1033.
- [16] WHITTLE, P. (1980). Multiarmed bandits and the Gittins index, *J. Roy. Statist. Soc. Ser. B*, **42**, 143-149.