

Ryadovkin K. S. (Saint Petersburg, Russia) **On branching random walks on periodic lattices.** ■

We consider a continuous time symmetric irreducible branching random walk on a multidimensional lattice with a periodic set of branching sources. Despite the probabilistic background of the problem, the work is essentially based on the methods of spectral theory. The main object of study is an evolution operator for the mean number of particles at an arbitrary point. The existence of the positive spectrum of the evolution operator leads to an exponential growth of the number of particles in branching random walks, called super-critical in a such case. For such case we calculate the leading term of first and second moments of the number of particles at an arbitrary point. Also some estimates for higher moments are proven. The leading term of the first moment is calculated in [1] regardless of the sign of the right edge of the spectrum.

REFERENCES

1. *Platonova M.V. Ryadovkin K.S.* Branching random walks on \mathbf{Z}^d with periodic branching sources. *Theory Probab. Appl.*, 2019, vol. 64, № 2, p. 283–307. ■

This work was supported by the RNF (project 17-11-01136).