

## Documents

Ftameh, K., Rozali, W.N.F.A.B.W., Hee, P.C.

**The idempotency in the genetic algebras generated by QSO on infinite state space**

(2023) *AIP Conference Proceedings*, 2880 (1), art. no. 030004, .

**DOI:** 10.1063/5.0165927

Department of Computational and Theoretical Sciences, Faculty of Science, International Islamic University Malaysia, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, Kuantan, Pahang Darul Makmur, 25200, Malaysia

**Abstract**

In this paper, we recall the notion of a quadratic stochastic operator (QSO) generated by a special distribution on infinite state space. Also, we consider the concept of genetic algebras generated by these QSOs. This paper aims to study the idempotency in the genetic algebras generated by QSO and defined by special distributions, including geometric, Poisson, mixture geometric, mixture Poisson and heterogeneous mixture geometric and Poisson distributions. © 2023 AIP Publishing LLC.

**Funding details**

This research was partially funded by fundamental research grant scheme from ministry of education Malaysia FRGS21-230-0839

**References**

- Bernstein, S.  
(1942) *Ann. Math. Stat*, 13, pp. 53-61.
- Lyubich, Y.I.  
(1971) *Russ. Math. Surv*, 26, pp. 51-123.
- Hofbauer, J., Sigmund, K.  
(1998) *Evolutionary Games and Population Dynamics*,  
Cambridge University Press
- Plank, M.  
(1995) *J. Math. Phys*, 36, pp. 3520-3534.
- Lyubich, Y.I.  
(1992) *Mathematical Structure in Population Genetics*,  
Springer Berlin, Heidelberg
- Ganikhodjaev, N., Hamzah, N.Z.A.  
(2014) *Sci. World J. Hindawi Publishing Corporation*,  
2014 (ID 832861)
- Ganikhodjaev, N., Hamzah, N.Z.A.  
(2015) *AIP Conf Proc*, 1643, pp. 706-712.
- Karim, S.N., Hamzah, N.Z.A., Fauzi, N.N.M., Ganikhodjaev, N.  
(1988) *J. Phys.: Conf. ser*, 1, pp. 1-10.  
2021
- Ganikhodjaev, N., Ftameh, K.  
(2019) *AIP Conf Proc*, p. 2184.
- Qaralleh, I., Mukhamedov, F.  
(2021) *Linear Multilinear Algebra. Taylor & Francis*, 69, pp. 2228-2244.

- Ganikhodjaev, N., Ftameh, K.  
(2021) *AIP Conf Proc*, 2423.

**Correspondence Address**

Hee P.C.; Department of Computational and Theoretical Sciences, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, Kuantan, Malaysia; email: pahchinhee@iium.edu.my

**Editors:** Ibrahim M.L.I., Daoud J.I.

**Publisher:** American Institute of Physics Inc.

**Conference name:** 6th International Conference on Mathematical Applications in Engineering 2022, ICMAE 2022

**Conference date:** 9 August 2022 through 10 August 2022

**Conference code:** 192652

**ISSN:** 0094243X

**Language of Original Document:** English

**Abbreviated Source Title:** AIP Conf. Proc.

2-s2.0-85176768067

**Document Type:** Conference Paper

**Publication Stage:** Final

**Source:** Scopus

---

**ELSEVIER**

Copyright © 2023 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

 **RELX Group™**