

MATHEMATICAL MODELING OF GREEN ECONOMY DEVELOPMENT PROCESSES

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Annotation. With the help of mathematical methods of partial differential equations, including fractional order, as well as the theory of stability, mathematical models of sustainable development of the regional green economy are constructed. On the basis of the analysis of the tracks of economic genesis, the application of the diffusion equation in the construction of a generalized model is substantiated. The nature of the obtained model solutions is described and the main requirements for the transition of the region to a green-growth economy are determined.

Keywords: green economy, region, model, fractional derivative, development stability, nonlinearity, fractality, attractors

REFERENCES

1. Bobyleva S.N., Kiryushina P.A., Kudryavtseva O.V. *Zelyonaya ekonomika i celi ustojchivogo razvitiya dlya Rossii: kollektivnaya monografiya* [Green Economy and Sustainable Development Goals for Russia: Collective Monograph.] Moscow: Moskovskij gosudarstvennyj universitet [Moscow State University] 2019. 284 p. (In Russian)
2. Vukovich N.A. «Green» economy: definition and modern eco-logo-economic model. *Vestnik UrFU. Seriya ekonomika i upravlenie* [Bulletin of Ural Federal University. Series Economics and Management]. 2018. Vol. 17. No. 1. Pp. 128–145. (In Russian)
3. Nakhushev A.M. On the problem of mathematical modeling of regional socio-economic systems. *Cifrovaya transformaciya nauki i obrazovaniya* [Digital Transformation of the science and education] Vestnik SamSTU. [Bulletin of Sam STU. Series Mathematical]. 2007. Vol. 6. No. 2. Pp. 4–15. (In Russian)
4. Nakhushev A.M. On some effective parameters of open time systems of regional management. *Izvestiya Kabardino-Balkarskogo nauchnogo centra RAN* [News of the Kabardino-Balkarian Scientific Center of RAS]. 2002. Vol. 8. No. 1. Pp. 72–75. (In Russian)
5. Nakhusheva Z.A., Ashinova I.V. Economic-mathematical compartmental model of the economic and social educational ecosystem of the territory. *Cifrovaya transformaciya nauki i obrazovaniya* [Digital transformation of science and education]. Collection of scientific papers. 2020. Pp. 229–235. (In Russian)
6. Ashinova I.V., Gurfova R.V., Kalmykova A.M., Nakhusheva Z.A. Economic track of the model of ontogenesis of regional universities. *Ekonomika i upravlenie: problemy, resheniya* [Economics and management: problems, solutions]. 2020. Vol. 4. No. 12 (108). Pp. 15–21. (In Russian)
7. Nakhusheva Z.A., Ashinova I.V. A compartment model of the economic and social educational ecosystem of the territory. *Vestnik KRAUNTs. Fiziko-matematicheskie nauki* [Bulletin of Kamchatka Regional Association Education-Scientific Center. Physical and Mathematical Sciences]. 2020. Vol. 33. No. 4. Pp. 78–85. (In Russian)
8. Putilov V.A., Gorokhov A.V. *Sistemnaya dinamika regional'nogo razvitiya* [System dynamics of regional development]. Murmansk: Pazori, 2002. 306 p. (In Russian)
9. *Perechen' porucheniy Prezidenta Rossii po itogam zasedaniya Gossoveta 24 yanvarya 2017 goda* [List of assignments of the President of Russia following the meeting of the State Council on January 24, 2017]. <http://www.kremlin.ru/acts/assignments/orders/53775> (date of access 12/10/2021). (In Russian)

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