Tryputen M., Kuznetsov V., Serdiuk T., Kuznetsova A., Tryputen M., Babyak M. One Approach to Quasi-Optimal Control of Direct Current Motor. 2019 IEEE 5th International Conference Actual Problems of Unmanned Aerial Vehicles Developments, Kiev, Ukraine, 22–24 Oct. 2019. Kiev, 2019. P. 190–193. DOI: 10.1109/APUAVD47061.2019.8943878. Full text is absence.

## One Approach to Quasi-Optimal Control of Direct Current Motor

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**Abstract:** The article presents the calculation of the transfer function of the DCM-30-N1-0.2 micromotor DC, obtained a transcendental system of equations for determining the duration of the quasi-optimal control intervals and the dependence of the first control interval on the specified overshoot. The obtained dependence can be used in the engineering methodology for the synthesis of quasi-optimal control and the choice of actuators of the automatic control system.

**Keywords:** DC motor, control object, quasi-optimal control, control interval, logic controller, control action, output quantity, functional dependence

## **References:**

1. Nikolay Tryputen, Vitaliy Kuznetsov and Yevheniia Kuznetsova, "About the Possibility of Researching the Optimal Automatic Control System on a Physical Model of a Thermal Object", 2019 IEEE 2nd Ukraine Conference on Electrical and Computer Engineering, pp. 2-6, July 2019.

2. V.V. Kuznetsov, V.V. Kuznetsov, A.V. Nikolenko, V.P. Ivashenko and M.M. Tryputen, "Recognition algorithm in the tasks of increasing the energy efficiency of asynchronous motors operating in conditions of low-quality electricity /", (Bulletin of the National Technical University "Kharkov Polytechnic Institute", vol. 27, no. 1249, pp. 95-98, 2017.

3. O.P. Chorniy, A.V. Lugovoy, D.J. Rodkin, G.Y. Sisyuk and O.V Sadovoy, Modeling of Electromechanical Systems: Textbook. - Kremenchuk, pp. 410, 2001.

4. O.V. Pritchenko, O.V. Pritchenko, A.P. Kalinov, V.O. Melnikov and O.V. Skripnikov, "The concept of the incentives of small-sized laboratory stands" in (Quarterly Scientific and Production Journal "Electromechanical and Energy Saving Systems"), Kremenchuk:KDPU, vol. 2, pp. 56-61, 2010.

5. O.V. Pritchenko, O.V. Pritchenko, A.P. Kalinov and V.O. Melnikov, "Use of small-scale physical models to study drive control systems" in (Bulletin of the Kremenchuk State University named after Mikhail Ostrogradsky), Kremenchuk:KDU, vol. 4/210, no. 62, pp. 184-188, 2010.

6. L.S. Pontryagin, The application of the maximum principle in optimal control., Moscow, pp. 245, 1998.

7. V.E. Gmurman, A guide to solving problems in probability theory and mathematical statistics., Moscow, 2004.

8. O.V. Shishov, "Elementyi sistem avtomatizatsii" in Kontrolleryi operatornyie paneli moduli udalyonnogo dostupa: laboratornyiy praktikum [Elements of automation systems. Controllers operator panels remote access modules: laboratory practice] Direkt-Media, Moscow, Russia - Berlin, Germany, 2015.

9. I.V. Gritsuk, I.V. Gritsuk, V.S. Verbovsky and D.S. Adrov, "Improving fuel efficiency with stationary and mobile energy sources", Aerospace engineering and technology., vol. 4, no. 61, pp. 43-45, 2009.

10. ansky R.S. Voli and A.V. Sadovoi, "The transformation of linear dynamical object's equation to Brunovsky canonical form", 2017 IEEE 4th International Conference on Actual Problems of Unmanned Aerial Vehicles Developments APUAVD 2017 - Proceedings".

11. V. Kuznetsov and A. Nikolenko, "Models of operating asynchronous engines at poor-quality electricity EasternEuropean Journal of Enterprise Technologies", ENERGY-SAVING TECHNOLOGIES AND EQUIPMENT., vol. 1, no. 73, pp. 37-42, 2015.

12. Yu. P. Adler, E. V. Markova, Yu. V. Granovski, Yu.P. Adler, E.V. Markova and Yu. V. Granovski, Planning the experiment while searching for optimum conditions [Text] /, M.:Nauka, pp. 183, 1976.