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MISLEADING LETTER OF ANRY NERSESSIAN TO EDITOR OF "YOUGOSLAV JOURNAL OF OPERATIONS RESEARCH" ON THE ARTICLE "CONTROL OF STAGE BY STAGE CHANGING LINEAR DYNAMIC SYSTEMS": A RESPONSE

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Getting familiarized with the content of the letter to the editor of jo... "Yugoslav Journal of Operations Research" (hereinafter Letter), I express disagree... with the author of the Letter, because only his own unjustified statements are presente...

I find it necessary to give explanations on the issues mentioned in the Letter.

1. In the section 1 the author of the Letter cites only the problems considered ... article [1].
2. In the section 2 the author of the Letter states that:

"First of all, observe that there is no need to distinguish the points $\{t_...$ corresponding time intervals indicated in equation (1). For instance, according ... above conditions, $\dot{x}(t)$ can have jumps also in (not used in (1)) points of the int... (t_0, T).

Author actually deal with an ordinary dynamical system ..."[1]

Note that many applied control problems and processes from various fields... science and technology are placing new claims on the mathematical models of co... systems and pose new problems for such dynamic systems. A necessity arises... investigate different control problems for such systems, in particular, for stage by sta... changing systems (systems with variable structures), in which the effect... multistageness and intermediate conditions must not be ignored. Therefore the statement... of the author of Letter are unjustified and incorrect.

It should also be noted that, the principle of functionality of such syste... (composed of continuous systems with certain rule of transition from one structure ... another) significantly extends possibilities of control, which is a consequence of usage ... useful properties of each of the structures and, in addition, as a result, allows to obta... new properties, which any of those systems might not have. Problems of control of su...

[1] Hereinafter in quotes (" ") are presented only citations from the Letter.

systems are considered, in particular, in [2-4]. It is obvious that the author of the Letter has superficial views on these issues.

1. In the section 3, the author of the Letter writes: "The discussion could be finished by now, however, it is noteworthy that by excessively complicating the problems solved long ago, the author eventually did not solve them."

In [1] (in section 3 "Solution of problems") solution to problem of control is built and a method to solve optimal control problem is proposed. It is strange that the author of the Letter does not notice all these. Besides, the necessary and sufficient conditions for complete controllability, as well as the conditions for existence of programmed control and motion are formulated. The constructiveness of the built solution is also illustrated by solving a concrete problem of optimal control (see section 4, example).

Regarding the comment that "the case $\det Q = 0$ is not investigated", it should be noted that the condition that the matrix Q and the augmented matrix $\{Q, C\}$ have the same rank (see Theorem 2) includes also that case. And for the case $\det Q \neq 0$ an explicit form of control action is given.

2. The conclusions of the author of Letter (given in Section 4) are not objective and are incorrect with which he seeks to disorientate the reader.

I want to mention that the author of the Letter, being a non-specialist in this field and having no single publication in this field, presents in the Letter his misperceptions.

REFERENCES

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[3] Johansson M., "Piecewise Linear Control Systems". Berlin: Springer, 2003. 202 p.
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