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MODEL PROBLEMS FOR CLASS OF SYSTEMS FOR MUTUAL POSITIONING SPACECRAFT AND PAYLOAD

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The class of systems for mutual positioning a spacecraft and payload is considered. It can include the existing systems for transportation of a payload relative to an orbital spacecraft using an anthropomorphic manipulator and the advanced systems with a manipulative parallel-kinematics mechanism. The present work deals with the development of model problems for the above class. To attain this, the most significant elements have been specified to analyze the processes under consideration. Those model problems are able to reveal the special features of the dynamics of a controlled motion of the systems under consideration, to select and develop algorithms of the motion control. Studies of oscillation processes in the parallel-kinematics mechanism, taking into account the mobility of its base in the inertial space and the mutual effects of the entire system motion and its relative motion, are carried out based on the presented model problems.

Keywords: *systems for mutual positioning, spacecraft, payload, parallel-kinematics mechanism, model problems, dynamic studies.*

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