

STABILITY THEORY METHODS IN DYNAMICS OF RIGID BODY WITH DRY FRICTION

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The problem of global qualitative analysis of dynamics of rigid body with dry friction on the base of the stability theory methods is discussed. If the friction has the total dissipation then a body could move only in some finite time interval. Using a special change of the time one can write down the equations of motion on the infinite interval of the new independent variable.

The modified equations of motion can be investigated on the base of the stability theory methods. Particularly, asymptotically stable (unstable) invariant sets of modified system correspond to attractors (repellers) of the original system. It permits to give the global qualitative analysis of dynamics of the original system.

This idea is illustrated by the example: a heavy homogeneous disk on an inclined plane with dry friction. The disk lies on a plane and can slide along the plane and turn about the normal to the plane.

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