

Zuev, A. V.; Savchenko, A. Ya.

On stability of permanent rotations of a model of the element of a wind-energetics mounting.

(Russian) [Zbl 1047.70576](#)

Mekh. Tverd. Tela 29, 30-38 (1997).

The model of the element of the wind energetics mounting is considered. This element consists of three rigid bodies: two blades and a shaft. Differential equations of motion of the mechanical system are written. The necessary and sufficient conditions of the existence of stationary solutions are obtained. For obtained stationary motion the differential equations of perturbed motion are written, then these differential equations are linearized. The characteristic equation is obtained for linearized system. The necessary conditions of stability of the conservative model and the sufficient conditions of stability of the model with the damping are obtained.

Reviewer: [Alexander O. Ignatyev \(Donetsk\)](#)

MSC:

[70E15](#) Free motion of a rigid body

[70H03](#) Lagrange's equations

[70K20](#) Stability for nonlinear problems in mechanics

[34D20](#) Stability of solutions to ordinary differential equations

Keywords:

[rigid body](#); [stationary solution](#); [stability of permanent rotation](#)