Theorem fl fl*Three first fintegrals f(78), f(81), f(82) fof fthe fl system f(76), f(77) fare fequivalent fo fthree first fintegrals fl (73), fl(74), fl(75) flof flthe flsystem fl(69), fl(70).*

Indeed, the couples of the firs integrals (78), (73) and (82), (75) coincides, if we substitute $b = -b_*$. And finall , we need to identify the phase variables Z_k, $k = 1, 2$, for the system (76), (77) with the phase variables w_k, $k = 1, 2$, of the system (69), (70). Because of their cumbersome character, the similar argu-ments concerning of the couples of the firs integrals (81), (74), we do not represent.

Thus, we have the following topological and mechanical analogies in the sense explained above.

(1) A motion of a fi ed physical pendulum on a spherical hinge in a fl wing medium (nonconservative force fields)

(2) A spatial free motion of a rigid body in a nonconservative force fiel under a tracing force (in the presence of a nonintegrable constraint).

(3) A spatial composite motion of a rigid body rotating about its center of mass, which moves rectilinearly and uniformly, in a nonconservative force field

On more general topological analogues, see also [8], [9], [12], [13], [15], [16], [17].

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The author(s) contributed in the present research, at all stages from the formulation of the problem to the final findings and solution.

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Conflict of Interest

The author(s) declare no potential conflicts of interest concerning the research, authorship, or publication of this article.

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