

November 9, 2020

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*Application of the Kovacic algorithm for the
investigation of motion of a heavy rigid body with a
fixed point in the Hess case*

In 1890 German mathematician and physicist W.Hess found new special case of integrability of Euler–Poisson equations of motion of a heavy rigid body with a fixed point. In 1892 P.A.Nekrasov proved that the solution of the problem of motion of a heavy rigid body with a fixed point under Hess conditions reduces to integrating the second order linear differential equation. In this presentation we derive the corresponding second order linear differential equation and reduce its coefficients to the rational form. Using the Kovacic algorithm, we proved that the liouvillian solutions of the corresponding second order linear differential equation exists only in the case, when the moving rigid body is the Lagrange top, or in the case when the constant of the area integral is zero.

**SCIENTIFIC SEMINAR
“DIFFERENTIAL GEOMETRY AND APPLICATIONS”**

headed by Academician of RAS Anatoly T. Fomenko

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