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9. Ordinary Differential Equations and Dynamical Systems

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Emmy Noether theorem assimilation in classical dynamics

Emmy Noether theorem (1918) on symmetry - laws of conservation coupling has more than a half of a century history of assimilation in finite freedom degree dynamics. A brief retrospective revue of E. Noether result interpretation and some generalizations is done. Lie, Noether, Lie prolonged, dynamical, Cartan, Hamiltonian symmetries conditions are compared. It is stressed that a discovery of the Cartan symmetry is in reality one of Emmy Noether's results. The role of Emmy Noether theorem for analytical mechanics is elucidated. Reference: I. S. Yemelyanova, Symmetry and constants of the motion for analytical dynamics. Nizhny Novgorod University Press, 1992, 171 p. Bibl. 278.