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**KOSTYA DRUZHKO**, University of Saskatchewan  
*Stationary-action principle and the intrinsic geometry of PDEs*

One usually formulates the principle of stationary action in terms of Lagrangians on jet bundles. However, at least in classical mechanics, the Lagrangian formalism can be described using only the intrinsic geometry of equations of motion (and the result is the Hamiltonian formalism). We will show that in the general case, the situation is similar. Each Lagrangian of a system of differential equations generates a unique element of the cohomology of some cochain complex produced by the intrinsic geometry of the system. Such cohomology elements can be considered variational principles. Using a non-covariant approach (the spatial part of a space+time decomposition), one can interpret variational principles of this type as a direct reformulation of the Hamiltonian formalism in terms of the intrinsic geometry of variational equations.