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Title:	Noether Charge in $f(R)$ Theories of Gravity
Authors:	Maurya, Sonali (/jspui/browse?type=author&value=Maurya%2C+Sonali)
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Abstract:	We have studied Lagrangian formulation through Variational principle in Lagrangian depending on the first derivative of generalized coordinates and then for Lagrangian depending on higher order derivatives of generalized coordinates. We looked at The Theorem of Ostrogradsky, which gives explanation as to why higher order derivative theories are unstable. We have studied some aspects of $f(R)$ theories starting with the evaluation of field equations, first in Einstein Gravity and then in $f(R)$ Gravity via metric formalism. We have also discussed Gibbons-York-Hawking term, which is required for action to be well posed, for both Hilbert-Einstein Action and $f(R)$ action. Further, we have studied an equivalent scalar representation and explored spherically symmetric solutions in $f(R)$ theories via Noether symmetry approach.
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