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Symmetries and Lie groupoids

Starting from a given action of a Lie groupoid on a fiber bundle, we show how to construct induced actions of certain Lie groupoids, derived from the original one, on certain fiber bundles, derived from the original one: this is an essential technical feature needed to understanding what it meant by invariance of a tensor field under the action of a Lie groupoid. As the most important example, we are able to show in which sense the multicanonical form θ and the multisymplectic form ω of the covariant hamiltonian formalism are invariant under the appropriate induced action, and similarly, the forms $\theta_{\mathcal{H}}$ and $\omega_{\mathcal{H}}$, given by the pull-back of the forms θ and ω by the hamiltonian \mathcal{H} , respectively, are invariant under the action of a Lie groupoid leaving the hamiltonian invariant. This is a joint work with Frank Michael Forger (University of São Paulo).