

Gauge Transformations on Holomorphic Bundles

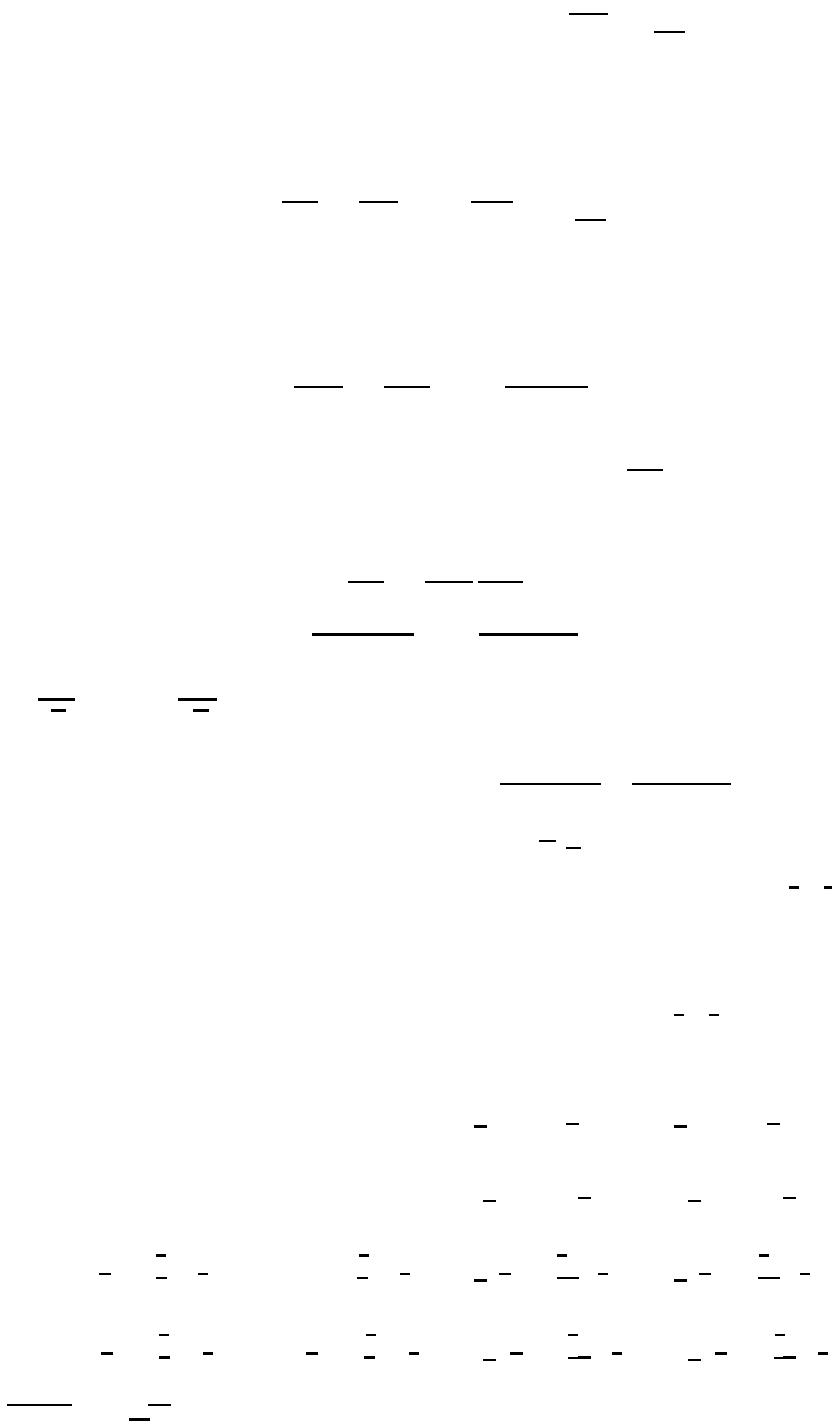
Gheorghe Munteanu

Abstract

In holomorphic tangent bundle $T'M$ we define a generalization of classical gauge transformation, called complex gauge transformation, and related to it we shall study the invariant geometric objects: d -gauge tensors, nonlinear gauge connection, gauge complex derivatives.

The problem of global invariance concerning a complex Lagrangian is treated in the section related to Einstein-Yang-Mills complex equations. Finally, we shall discuss a few applications regarding infinitesimal complex gauge transformations.

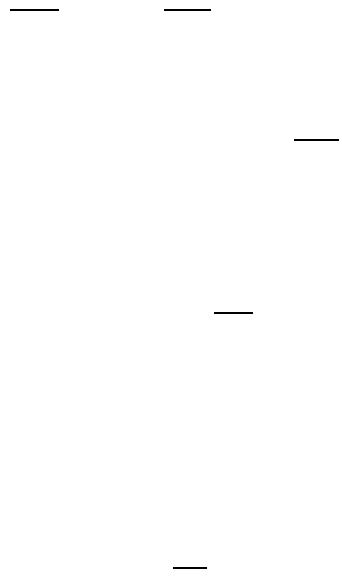
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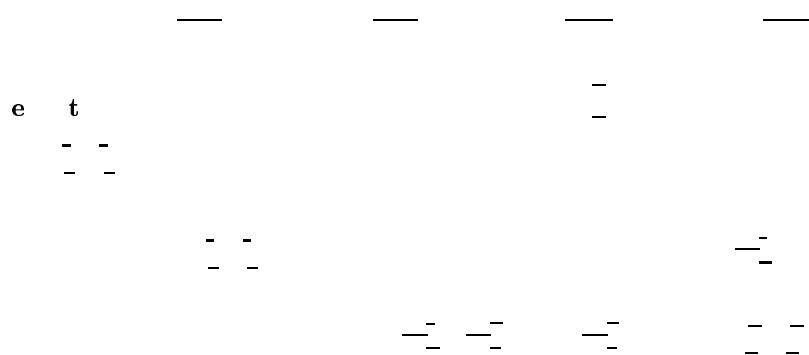


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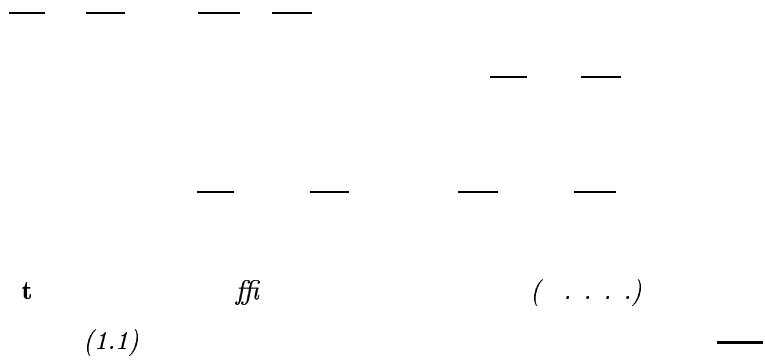


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$$\frac{\Phi^A}{\overline{\Phi}^A} \qquad \overline{\Phi}^A \quad \varepsilon^\lambda \quad {}_\lambda \overset{A}{B} \frac{\Phi^B}{\overline{\Phi}^A} \qquad \frac{\overline{\Phi}^A}{\overline{\Phi}^A} \quad \varepsilon^\lambda \quad {}_\lambda \overset{A}{B} \frac{\Phi^B}{\overline{\Phi}^A}$$

$$\frac{\overline{\Phi}^A}{\overline{\Phi}^A} \qquad \overline{\overline{\Phi}}^A \quad \varepsilon^\lambda \quad {}_\lambda \overset{A}{B} \frac{\Phi^B}{\overline{\Phi}^A} \qquad \frac{\overline{\Phi}^A}{\overline{\Phi}^A} \quad \varepsilon^\lambda \quad {}_\lambda \overset{A}{B} \frac{\Phi^B}{\overline{\Phi}^A}$$

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$$\overline{\Phi^A} \Phi^B \quad \Phi_A \overline{\Phi^B} \quad \overline{\Phi}_A \overline{\Phi^B} \quad \Phi_A \overline{\Phi^B} \quad \overline{\Phi}_A \overline{\Phi^B} \quad \lambda_B^A$$

$$\left\{ E_A \Phi^B \quad \Phi_{A|} \overline{\Phi^B} \quad \overline{\Phi}_{A\overline{|}} \overline{\Phi^B} \quad \Phi_{A\parallel} \overline{\Phi^B} \quad \overline{\Phi}_{A\overline{\parallel}} \overline{\Phi^B} \right.$$

$$\left. \Phi_A \overline{\Phi^A} \quad \overline{\Phi}_A \overline{\Phi^A} \quad \Phi_A \overline{\Phi^A} \quad \overline{\Phi}_A \overline{\Phi^A} \right\} \quad \lambda_B^A$$

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$$\begin{array}{ll} A| & \overline{-} \\ \overline{A\overline{|}} & \overline{-} \\ A\parallel & \overline{A\overline{\parallel}} \end{array} \quad E_A \quad \lambda_B^A \Phi^B$$

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$$\begin{array}{ccccc} A & & \gamma - & & \Phi \\ & & & & \\ & \text{ff} & & \Gamma & \\ & & & & \\ & & & & \gamma - \\ & & & & \Gamma \\ & & & & c \\ & & & & \Phi \end{array}$$

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 \end{array}$$

$$\gamma & \frac{\overline{\Phi}}{\underline{\Phi}} & \underline{\Phi} & m & \overline{\Phi} & \Phi & -f & \overline{\Phi} \Phi$$

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