

**Bejancu, A.**

**Generalized gauge theories.** (English) [Zbl 0798.53028](#)

Szente, J. (ed.) et al., Differential geometry and its applications. Proceedings of a colloquium, held in Eger, Hungary, August 20-25, 1989, organized by the János Bolyai Mathematical Society. Amsterdam: North-Holland Publishing Company. Colloq. Math. Soc. János Bolyai. 56, 101-126 (1992).

The author gives a generalization of the classical gauge theory concerning with physical fields and Lagrangians which depend on some other coordinates besides the space-time coordinates. This is equivalent to consider physical fields defined on the total space of a vector bundle on the coordinate's manifold. The tensor calculus is induced by a horizontal distribution on the vector bundle. The author studies the global and local gauge invariance of a Lagrangian which enables him to construct strength fields and Lagrangians for gauge fields and further to propose a full Lagrangian for his gauge theory. The motion equations and conservation laws are derived.

For the entire collection see [\[Zbl 0764.00002\]](#).

Reviewer: V.Boju (Craiova)

**MSC:**

**53C07** Special connections and metrics on vector bundles (Hermite-Einstein, Yang-Mills)

**81T13** Yang-Mills and other gauge theories in quantum field theory

**Keywords:**

[gauge covariant derivatives](#); [gauge  \$K\$ -connection](#); [Lagrangians](#); [motion equations](#); [conservation laws](#)