subbundle $E_1$ which satisfies the following conditions:

1) the restriction of the scalar product to $E_1$ is nondegenerate and indefinite;

2) the Peterson form of the subbundle $TM^n$ effects an isomorphism of the tangent bundle $\text{Hom}(E_1, E/E_1)$, all of whose sections have common kernel.

Here the Weyl tensor of the metric $g(X, Y) = \langle V_X s, V_Y s \rangle$ (where $s$ is an arbitrary section of $E_1$) coincides with the curvature of the connection, projected to the orthogonal complement to $E_1$ (after identifying the latter with an $\text{End}(TM^n)$-valued 2-form).

LITERATURE CITED


KORTEWEG-DE VRIES SUPEREQUATION AS AN EULER EQUATION

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It is known that the Korteweg-de Vries (KdV) equation is associated with the Virasoro algebra (see [2; 3]). In [6] (see also [5; 7]) the Korteweg-de Vries superequation (sKdV) was proposed, corresponding to the simplest superanalogues of the Virasoro algebra, i.e., the Neveu-Schwarz and the Ramond superalgebras. The present note concerns one geometric aspect of this connection. Its goal is to show that $(s)$KdV is the Euler equation on the corresponding groups, i.e., the equation of the geodesics of some one-sidedly invariant metrics.

1. Recall the well-known definitions from mechanics (see [1]). Let $\mathfrak{g}$ be a Lie (super)algebra. The (right-)invariant metric on the corresponding group is uniquely defined by symmetric operator $A: \mathfrak{g} \rightarrow \mathfrak{g}^*$, which is called the inertia operator of an extended rigid body. It is given by the conveyance over the group of (right) shifts of the scalar product on $\mathfrak{g}$:

$$(\xi, \eta) = \langle A\xi, \eta \rangle, \text{ where } \xi, \eta \in \mathfrak{g}.$$ 

Let $g(t)$ be a geodesic of the right-invariant metric on the group. An element $\omega = Rg^{-1}g$ of the Lie algebra is called the angular velocity of the body. The element $M = A\omega$ of $\mathfrak{g}^*$ is called the kinetic moment with respect to the body.

The moment vector with respect to the body satisfies equation $dM/dt = \omega \mathfrak{ad}M$ which is called the Euler equation.

On the dual space to the Lie (super)algebra there exists a natural Poisson-Lie-Berezin-Kirillov bracket. Let $F$ and $G$ be functions on $\mathfrak{g}^*$. Then

$$\{F, G\}(M) = \langle M, [dF, dG] \rangle \quad (1)$$