

Holonomy of supermanifolds

The holonomy group is one of the main invariants of a connection on a vector bundle over a smooth manifold. In particular, holonomy allows us to find all parallel sections of this vector bundle. The aim of this talk is to extend the notion of holonomy to the case of supermanifolds.

First I give an introduction to the theory of supermanifolds. Then I study parallel sections of locally free sheaves over supermanifolds. I show that any parallel section is uniquely defined by its value at any point of the underlying manifold. After this I define the holonomy algebra and the holonomy group for connections on sheaves over supermanifolds. Then I obtain a one-to-one correspondence between parallel sections and holonomy-invariant vectors, as in the case of vector bundles over smooth manifolds. Finally I get a one-to-one correspondence between parallel locally direct subsheaves and holonomy-invariant vector supersubspaces.

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