

Hamiltonian formulation of the Yang-Mills equations

Marta Farré Puiggalí
Universidad Complutense de Madrid

Given a principal fiber bundle P over a semi-riemannian manifold M , Yang-Mills equations are defined over the space of principal connections on P . They are the Euler-Lagrange equations corresponding to a certain Lagrangian defined on J^1C , the first jet bundle of C , where C is the bundle of connections on P . We write the Hamiltonian counterpart of the variational problem defined by the Yang-Mills Lagrangian on the polysymplectic bundle Π and recover Yang-Mills equations from Hamilton-Cartan equations on Π .