

Examples of Application of Dirac Structures

Dirac structures have evolved since their invention about 30 years ago as a generalization encompassing presymplectic and Poisson structures, and then providing a geometry beyond Poisson and symplectic geometry. One aspect of the development of Dirac structures has to do with physical systems, in particular they provide an invariant way of describing equations of motion and interconnected systems. The transformation properties of Dirac structures allow to define a categorical approach which in many cases has advantages as compared with using Poisson or symplectic geometry.

In this course, I will introduce the basic concepts related to Dirac geometry and show its importance in examples of physical interest.