

## **Geometry of Nonholomic Systems**

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In this talk I will discuss some of the geometry that arises in the study of nonholonomic systems. Nonholonomic systems are mechanical systems subject to nonholonomic (nonintegrable) constraints on system velocities and are a natural generalization of Hamiltonian systems. Nonholonomic systems conserve energy, but not necessarily volume or momentum. There is a natural bracket associated with such systems which does not satisfy the Jacobi identity. Its vanishing is related to the curvature of the constraint distribution. I will also discuss the use of Cartan's method of moving frames in analyzing such systems as well as aspects of integrability and the role of continuous and discrete symmetries.