

1124-34-196

**Anthony M Bloch\*** (abloch@umich.edu), **Francois Gay-Balmaz** and **Tudor S Ratiu**. *Low rank integrable systems, moment maps and optimal control.*

In this talk we consider certain integrable systems and their relationship to optimal control problems. In particular we consider the rigid body problem and its symmetric representation and low rank formulation, a class of flows on symmetric matrices, the geodesic flows on Stiefel manifolds and the Toda flow. We also discuss the role that the geometry of the moment map plays in this problem. (Received September 08, 2016)