

General Mathematics Seminar  
of the  
University of Luxembourg  
in cooperation with the  
Luxembourg Mathematical Society

**January, 2012**

**Tuesday, January 17, 2012, at 17:00**

**Campus Kirchberg, Room B02**

Roland Knevel  
( Bar-Ilan University Ramat Gan, Israel )

**Integrating super vectorfields and the super geodesic flow**

Abstract:

Aim of my talk will be to introduce the notion of integral and geodesic flows on supermanifolds as certain partial actions of  $\mathbb{R}$ . In fact these supermanifolds will be 'parametrized' over a 'small' super algebra, which makes the theory much easier. I will explain this concept and show that it fits well into the general framework of local deformation theory. A version of Palais' theorem for supermanifolds is obtained stating that every infinitesimal action of a simply connected super Lie group on a supermanifold can be integrated to a whole group action. Finally I show that Newton's, Lagrange's and Hamilton's approach to mechanics can be formulated also for Riemannian supermanifolds and are in fact equivalent.