



You are cordially invited to a
Thesis Defense

Entitled

General Relativity, Supergravity and Tangent Groups

by

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The Lorentz group $SO(1,3)$ is a local symmetry of space-time and is used to define a local orthonormal frame. This symmetry could be used to define General Relativity that allows spinors using the Cartan formulation. Some years ago, it was shown by Chamseddine and Mukhanov, contrary to statements made by Weinberg, that the local symmetry could be enlarged to the groups $SO(1,4)$ or $SO(2,3)$, and that the gravitational action is equivalent to the Einstein-Hilbert action. A Lagrangian for Supergravity could be constructed by considering the Poincare extension of the Lorentz group, as was shown by Chamseddine and West in 1976. A recent paper by Chamseddine and Mukhanov have shown that gravity and gauge theories could be unified in one geometric construction, using a large Lorentz tangent group $SO(1,13)$, provided that a metricity condition is imposed on vielbein. We will discuss this unification in Topological field theories in 3-dimension. This implies that the Chern-Simons Theory exists in 3-dimensions for both gauge theories and gravity with the same quantized coupling constants.

Date: Wednesday, April 26, 2017

Place: Rm. 310

Time: 5:30 p.m.