• **A Noncommutative Realization of Cohen-Glashow "Very Special Relativity**
  M. M. Sheikh-Jabbari

Abstract
The Cohen-Glashow Very Special Relativity (VSR) algebra [arXiv:hep-ph/0601236] is defined as the part of the Lorentz algebra which upon addition of CP or T invariance enhances to the full Lorentz group, plus the space-time translations. We show that noncommutative space-time, in particular noncommutative Moyal plane, with light-like noncommutativity provides a robust mathematical setting for quantum field theories which are VSR invariant and hence set the stage for building VSR invariant particle physics models. In our setting the VSR invariant theories are specified with a single deformation parameter, the noncommutativity scale $\Lambda_{NC}$. Preliminary analysis with the available data leads to $\Lambda_{NC} \approx 1-10$ TeV. This seminar is based on arXiv:0806.3699 & arXiv:0811.3670.

• **Hopf Fibration**
  H. Fakhri

Abstract
Using the spherical basis of the spin-$v$ operator together with an appropriate normalized complex $(2v+1)$-spinor on $S^3$ we obtain spin-$v$ representation of the $U(1)$ Hopf fibration $S^3 \rightarrow S^2$ as well as its associated fuzzy version.

• **Extended Star Product**
  A. Dehghani

Abstract
Using coherent states of the Weyl–Heisenberg algebra $h_N$, extended Voros products and Moyal brackets are derived. The covariance of Voros product under canonical transformations is discussed. Star product related to Barut–Girardello coherent states of the Lie algebra $su(1, 1)$ is also considered. The star eigenvalue problem of Landau levels corresponding to a charged particle in an unified magnetic field $B$ is also considered.

• **Noncommutative geometry of phase space**
  M. Lotfizadeh

Abstract
A version of noncommutative geometry is proposed which is based on phase space rather than position space. The momenta encode the information contained in the algebra of forms by a map which is the noncommutative extension of the duality between the tangent bundle and the contangent bundle.
• The GL(1|1) WZNW model as a super Poisson-Lie dualizable sigma model
A. Eghbali, A. Rezaei-Aghdam

Abstract
An obvious interest caused to get result the GL(1|1) WZNW model from a super Poisson-Lie T-dual sigma model. Our analysis begins with a careful study of super Poisson-Lie symmetry and T-dual sigma models on supermanifolds and supergroups, respectively. In this respect, we first construct WZNW model on the Lie supergroup GL(1|1). Then, using the condition of the super Poisson-Lie symmetry we find a dual pair for the Lie superalgebra gl(1|1). It has shown that T-dual sigma model on the Drinfel'd superdouble based on the Lie supergroup GL(1|1) and its dual pair is the same of the GL(1|1) WZNW model.

• A Testable Model Simultaneously Explaining Neutrino Mass and Dark Matter
Yasaman Farzan

Abstract
Recently a minimalistic scenario has been developed to explain dark matter and tiny but nonzero neutrino masses. In this scenario, a new scalar called SLIM plays the role of the dark matter. Neutrinos achieve Majorana mass through a one-loop diagram. This scenario can be realized for both real and complex SLIM. Simultaneously explaining the neutrino mass and dark matter abundance constrains the scenario. In particular for real SLIM, an upper bound of a few MeV on the masses of the new particles and a lower bound on their coupling are obtained which make the scenario testable. The low energy scenario can be embedded within various U(2)*U(1) symmetric models. I shall briefly review the scenario and a specific model that embeds the scenario, with special emphasis on the effects on the charged Kaon decay which might be observable at the KLOE and NA62 experiments. I will also discuss the potential of discovering the model at the LHC.

• f(T) cosmology via Noether symmetry
K. Atazadeh and F. Darabi

Abstract
We consider Noether symmetry approach to find out exact cosmological solutions in f(T) -gravity. Instead of taking into account phenomenological models, we apply the Noether symmetry to the f(T) gravity. As a result, the presence of such symmetries elects viable models and allow to solve the equations of motion. We show that the generated f(T) leads to a power law expansion for the cosmological scale factor.
**Jacobi Sigma model**  
Parisa Kheradmand

Abstract  
We have introduced the two dimensional non-linear sigma model on manifolds in general condition by using Jacobi structure, and as an example we have calculated for group $A_{(4,8)}$ and show that it is integrable by using the equations of motion a zero curvature representation that is equal to integration of non-linear sigma model.

**Nambu-Sigma model**  
Suzan Farhang

Abstract  
We have introduced the non-linear Nambu-sigma model which is based on Nambu structures of three orders. In generally, we have defined it on a manifold and corresponding Lie group, then as an example we present Nambu-sigma model on one Lie group that is isometric with group $A_{(4,10)}$. At last we prove its integrability by Lax pairs.

**n-Lie bialgebras**  
Sh. Ghanizadeh, A. Rezaei-Aghdam

Abstract  
By use of cohomology complex of n-Lie algebras, the definitions of Lie bialgebra, its double and Manin triple are extended to the case of n-Lie algebras. All theorems about Lie bialgebras are extended and proved to the case of n-Lie bialgebras. A new theorem about the correspondence between n-Lie bialgebras and its associated Lie bialgebra are proved. In all steps the case $n=3$ as a special case is discussed.

**4+1 dimensional homogeneous anisotropic string cosmological models**  
B. Mojaveri and A. Rezaei-Aghdam

Abstract  
We present exact solutions of string cosmological models characterized by five dimensional metrics (with four dimensional real Lie groups as isometry groups), space independent dilaton and vanishing torsion. As an example we consider $V_{I0}+R$ model and show that it is equivalent to the $4+1$ dimensional cosmological model coupled to perfect fluid with negative deceleration parameters (accelerating universe).