

**ABDUS SALAM SCHOOL OF MATHEMATICAL SCIENCES (ASSMS)  
AND  
NATIONAL CENTER FOR MATHEMATICS (NCM)**

invite you to attend

**SEMINAR SERIES ON LIE GROUPS AND  
LIE ALGEBRAS**

**RESOURCE PERSON:**

**Dr. Barbu Berceanu & Dr. Zahid Raza**

We will discuss some basic concepts about the semi simple Lie algebras over the fields of characteristic zero, especially over the fields of complex and real numbers. More precisely, we will focus on the following problems. First two parts are very much interested for algebraists and the last part will be for geometers.

- 1: The classification of complex Lie algebra using Dynkin diagrams (quick review).
- 2: For each complex simple Lie algebra  $g$ , find all the real forms of  $g$  up to isomorphism.
- 3: Classification of semi simple and nilpotent orbits of elements of the complex semi simple Lie algebra up to the conjugation under the adjoint group (special cases).
- 4: Some applications, especially construction of minimal surfaces.

**References:**

- [1] Helgason S. Differential geometry, Lie groups and symmetric spaces, Academic Press 1978.
- [2] Collinwood D. H. and McGovern W. M. Nilpotent orbits in semi simple Lie algebras, Van Nostrand Reinhold, 1993, New York.
- [3] Vinberg E.B and Onhishik A. L. Seminar on Lie groups and Lie algebra (in Russian), Nauka Moscow 1988.

**STARTING DATE:**

April 16, 2009

**DAY & TIMING:**

Every Thursday, 02:00 PM - 04:00 PM

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**VENUE:**

**ABDUS SALAM SCHOOL OF MATHEMATICAL SCIENCES  
68-B, New Muslim Town, Lahore 54600 - PAKISTAN**