Department of Mathematics
Postgraduate Seminar Program

Friday January 13th, 12 Noon, **67-442**

Lie algebra deformations and the exact solutions of quantum integrable systems

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Lie algebra deformations are a means of generalizing the structure of Lie algebra. They have found increasing application in theoretical physics and continue to attract considerable attention. Examples of such deformations include the quantum groups, which are pivotal to the solution of the anisotropic spin chain.

In this talk we will examine two classes of Lie algebra deformations, namely the polynomial Lie algebras and quasi-Gaudin algebras. We will see that these algebras are useful in deriving the exact solutions of a number of important quantum integrable models such as the Bose Hubbard dimer, Tavis-Cummings and deformed Dicke model.

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