Department of Mathematics
University of Delhi

South Campus Colloquium Lectures in Mathematics

You are cordially invited to a lecture

by

Prof. Ali Baklouti

University of Sfax-Tunisia

On

Lie Theory, Deformations, and Their Impact on Life Sciences and Beyond

at

2.00pm

Friday, 16 January 2026

In

Seminar Room 117, Arts Faculty,
University of Delhi South Campus

ABSTRACT: This talk highlights the central role of Lie theory as a unifying framework across mathematics and a wide range of scientific disciplines, with particular relevance to models arising in the study of living systems. A central theme is deformation theory, which provides a powerful language for describing symmetries and their evolution under perturbations.
Through the study of Lie groups and their deformations, the talk illustrates how these structures naturally appear in areas such as medicine, physics, chemistry, and biology, where they help organize complex phenomena and suggest new analytical approaches. In this way, Lie theory serves as a bridge between abstract mathematics and concrete scientific problems.
At the same time, Lie theory continues to play a fundamental role in pure mathematics, notably in harmonic analysis, differential geometry, and algebra, and it remains deeply connected to contemporary developments in theoretical physics and computer science. The talk emphasizes the coherence and versatility of this framework, showing how common mathematical ideas can inform diverse areas of research.
Finally, the presentation introduces new conjectures in deformation theory and reports recent advances in representation theory that address long-standing open questions. These results shed new light on the structure of Lie groups and their representations, and they open perspectives for further progress both within mathematics and in its applications.

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