Deformation Theory of algebraic structures and Twisted algebraic structures

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Overview

The aim of this course is to provide a complete introduction to algebraic deformation theory, including formal deformations introduced by M. Gerstenhaber based on formal power series, global deformations based on any commutative algebra, following a general theory of M. Schlessinger and the recent developments in quantization deformation theory connected to the celebrated work of M. Kontsevich.

The course gives detailed expositions of fundamental concepts along with an introduction to recent developments in the topics using these fundamental tools. Also the idea is to present enough examples so that the participants can really understand the main concepts behind the theory.

In this course, we deal with methods from algebra, geometry and category theory. Moreover, we will propose tutorials and problems about different notions like computations of certain invariants e.g. cohomology, Lie and Poisson structures and Hopf algebras.

In the second part of the course, we will discuss the Hom-type algebras. We will show examples of q-deformations of Lie algebras of vector fields that led to Hom-Lie algebras. Then provide key constructions and an overview of the recent developments in this area.

Modules	**Deformation theory of algebraic structures and Twisted algebraic structures: October 23 to November 3, 2017 (10 days): 28 hours lectures and 10 hours tutorials.** **Number of participants for the course will be limited to twenty -five.**
You Should Attend If…	**you are a students in the master level or a researchers in the field of algebra, geometry and mathematical physics.** .
Fees	The participation fees for taking the course is as follows: **Participants from abroad : NIL** **Industry/ Research Organizations: NIL** **Academic Institutions: NIL** A copy of the instructional material will be provided. The participants can be provided with accommodation and some travel support.

The Faculty

Prof. Dr Abdenacer Makhlouf is the Director of Laboratory of Mathematics, Computer Science and Applications, University of Haute Alsace, Mulhouse, France. His research is on the structure, representations, deformations and cohomology of various types of algebras, including associative algebra, nonassociative algebras, Hopf algebras and n-ary algebras.

Dr. Ashis Mandal is an Assistant Professor of Mathematics at the Indian Institute of Technology Kanpur. His research areas include deformation theory of algebraic structures, Lie algebroids and related topics.

Course Co-ordinator

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