

# TEMPLE UNIVERSITY MATHEMATICS COLLOQUIUM

**Vasily Dolgushev**

University of California, Riverside

will speak on

## **Puzzles of deformation theory**

ABSTRACT: A lot of interesting mathematical constructions are motivated by questions of deformation quantization. In my talk I will give a popular introduction to this fascinating topic. First, I will show that formal deformations of an associative algebra are governed by the Hochschild cochain complex. Second, I will discuss algebraic operations on this complex. Then I will formulate the famous Kontsevich's formality theorem and talk about its generalizations. Finally, I will discuss applications of formality theorems for Hochschild complexes to computation of Hochschild (co)homology and description of traces on deformation quantization algebras. If time will permit then I will also talk about the Kashiwara–Vergne conjecture and about the mysterious action of the Grothendieck–Teichmüller group on deformations of the polynomial algebra.

FRIDAY, 12 FEBRUARY 2010

LECTURE AT 11:00 AM

COFFEE, TEA, AND REFRESHMENTS FROM 10:30 AM

ROOM 617, WACHMAN BUILDING

DEPARTMENT OF MATHEMATICS