

ENXIN WU
University of Western Ontario

Deformation of A-infinity algebras

The idea of deformation theory (deformation quantization) mainly came from geometry and physics. In the 1960's, Gerstenhaber used this idea in pure algebra to study the deformation theory of various algebras. For an associative algebra, Gerstenhaber connected the deformation theory with the second and third Hochschild cohomology groups. We call this the classical deformation theory of an associative algebra, and try to extend it to the context of A-infinity algebras, with the aim of deforming an associative algebra to an A-infinity algebra so that we may use the techniques of A-infinity algebras to solve problems about associative algebras. This work is in progress. In the talk, because of the complexity of A-infinity algebras, we will mainly focus on the known results about the deformation theory of associative algebras, and briefly introduce the basic definitions, properties and corresponding deformation theory of A-infinity algebras.