1024-16-223   **Brad Shelton*** (`shelton@math.uoregon.edu`), Department of Mathematics, University of Oregon, Eugene, OR 97403-1221, and **Thomas Cassidy**, OR. *PBW deformations of graded algebras part II.*

An n-dimensional Lie algebra can be seen as a non-homogenous deformation of a polynomial ring in n variables. The classical Poincare-Birkhoff-Witt Theorem states that the universal enveloping algebra of the Lie algebra is canonically isomorphic, as a vector space, to the polynomial ring. Similarly, a deformation U of a graded algebra A is said to be of PBW type if the graded algebra associated to U is isomorphic to A. The classical PBW Theorem has modern analogs in the theory of Koszul and N-Koszul algebras, where a deformation U is PBW if and only if the relations of U satisfy a Jacobi type condition. We extend these results to arbitrary connected graded algebras A using the notion of central extensions of algebras and a homological constant attached to A which we call the complexity of A. (Received January 09, 2007)