1057-16-228 **Andrew Conner*** (aconner@uoregon.edu), Department of Mathematics, University of Oregon, Eugene, OR 97403, and **Peter Goetz** (pdg11@humboldt.edu). *A_∞ structures and $\mathcal{K}_2$ algebras.*

Let K be a field and A be a connected graded K-algebra, finitely generated in degree 1. Let $(Q_\bullet, \partial)$ be a graded projective resolution of ${}_AK$ by left A-modules. Let $E(A) = H^*(\mathrm{End}(Q_\bullet))$ be the associated bigraded Yoneda algebra of A. A theorem of Kadeishvili states that $E(A)$ admits canonically defined higher multiplications which give $E(A)$ a minimal A_∞-algebra structure. If A is Koszul, all higher multiplications on $E(A)$ are zero. $\mathcal{K}_2$ algebras are a natural generalization of Koszul algebras. In this paper, we exhibit a family B_n of $\mathcal{K}_2$ algebras with quadratic and cubic relations such that an A_∞-structure on $E(B_n)$ provided by Kadeishvili's theorem has nonzero higher multiplications for all i, $2 \le i \le n$. (Received January 23, 2010)