1048-81-44 **Anton Zeitlin*** (anton.zeitlin@yale.edu), 10 Hillhouse Avenue, 442 Dunham Lab, Yale University, Department of Mathematics, New Haven, CT 06511. *Field Equations from Homotopy Algebras of CFT.*

We show that homotopy structures of Conformal Field Theory (CFT), discovered in the pure chiral case by Lian and Zuckerman, for a certain type of CFTs, being generalized to the non-chiral case, lead to nonlinear differential-geometric equations and their symmetries, which arise as the certain "classical" limits of the corresponding Maurer-Cartan structures. According to such an approach, we derive Yang-Mills equations, Einstein equations with matter fields, and (generalized) Kodaira-Spencer theory. We also give the conjectures about a possible algebraic approach to the study of beta-functions in String Theory sigma-models. (Received January 11, 2009)