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Li Guo* (liguo@newark.rutgers.edu), Smith Hall, Room 216, Department of Math & Comp. Sci., Rutgers University at Newark, Newark, NJ 07102. *Some Algebraic Structures on Rooted Trees.*

We present several algebraic structures on rooted trees that have arisen recently years in mathematics and physics study. Such structures include those of algebras with operators, Rota-Baxter algebras and differential algebras. We also discuss the Hopf algebras structure of Connes-Kreimer from quantum field theory and of Loday-Ronco from operads. These structures gave combinatorial meaning to the algebraic objects and in turns allows algebraic tools to be applied to the study of trees. Some applications will be given. (Received February 08, 2007)