

1030-05-248

Tian-Xiao He* (the@iwu.edu), Dept. Math & CS, P. O. Box 2900, Illinois Wesleyan University, Bloomington, IL. *The Sheffer Group, the Riordan Group, and their Characterization*. Preliminary report.

We define the Sheffer group of all Sheffer-type polynomials and prove the isomorphism between the Sheffer group and the Riordan group. An equivalence of the Riordan array pair and generalized Stirling number pair and their extensions to higher dimensional setting are also presented. Finally, we discuss the construction of the Riordan arrays, characterization in its generating function form of the Riordan group, Sheffer group and their subgroups. Formulas for the computation of the generating functions of Riordan arrays and Sheffer-type polynomial sequences from the characteristics are obtained accordingly. Furthermore, some applications will be also mentioned. (Received August 05, 2007)