Title: Riordan arrays – The Riordan Group

Abstract:

A Riordan array is a lower triangular infinite matrix, constructed by two functions which can be written as formal power series in such a way that each of the columns is generated by them. The entries of each column are the coefficients of the polynomial that is generated by these two functions. The elements of the matrix can be determined by a recursive formula.

Riordan arrays are called after John Riordan, an American mathematician who was one of the pioneer researchers in Combinatorics. The area of Riordan arrays has been researched since the early 1990s and applications of them have been found in many areas of computing such as algorithm analysis, error correcting codes and wireless communications. Additionally, Riordan arrays have been used in different scientific areas beyond the borders of Mathematics as parts of their theory and techniques have been successfully applied in Molecular Biology for RNA secondary structure enumeration and Chemistry.

Our main research focuses on the structure of the Riordan group, relations between already known Riordan subgroups, classifications of them and possible applications of the theory which is related to the Riordan group.