Riordan graphs and their structural properties

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In this talk, we use the theory of Riordan matrices to introduce the notion of a Riordan graph. The Riordan graphs are a far-reaching generalization of the well known and well studied Pascal graphs and Toeplitz graphs, and also some other families of graphs. The Riordan graphs are proved to have a number of interesting (fractal) properties, which can be useful in creating computer networks with certain desirable features, or in obtaining useful information when designing algorithms to compute values of graph invariants. The main focus in this talk is the study of structural properties of families of Riordan graphs obtained from infinite Riordan graphs, which includes a fundamental decomposition theorem.

Keywords: Riordan matrix, Riordan graph, Pascal graph, fractal, graph decomposition