

POLYNOMIALS AND RIORDAN MATRICES

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(Joint work with Gi-Sang Cheon)

Many polynomial sequences have (generalized) Riordan matrices as their coefficient matrices. The structure of a Riordan matrix and the Riordan group is a great help in studying those polynomials. In the first part of this talk, we briefly review such cases which lead to the generating function, recurrence relations, determinantal formula, combinatorial interpretations of the polynomials, and a relationship to other polynomials.

The second part is devoted to our recent work [1] on the zeros of polynomials. A key idea is representing a polynomial as the characteristic polynomial of certain matrix similar to the companion matrix of the polynomial.

REFERENCES

- [1] G.-S. Cheon, H. Kim, *Representing polynomials as characteristic polynomials via the Stieltjes transform*, Linear Algebra Appl. **476** (2015), 184–196.