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A Matrix-Based Approach to Appell Polynomials

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In this seminar we present a matrix-based framework for the study of Appell polynomial sequences. By introducing the creation matrix and the associated transfer matrix, Appell polynomials can be represented in a unified and compact form, allowing classical families such as Bernoulli, Euler, and Hermite polynomials to be treated using elementary matrix operations. The approach provides simple proofs of fundamental properties and naturally extends to modified orthogonal polynomials and to generalized Appell sequences in a hypercomplex, non-commutative setting, with applications to monogenic polynomial theory.

*Seminar website: <https://msrn.sfedu.ru/sl>. The seminar uses Microsoft Teams online platform. Please send questions to ademp.seminar@gmail.com (Tatiana Andreeva, scientific secretary).

The seminar is organized by the coordinators Alexey Karapetyants and Vladislav Kravchenko within the activities of the Regional Mathematical Center of the Southern Federal University in collaboration with Institute of Mathematics, Mechanics and Computer Sciences of the Southern Federal University and the OTHA research group in Operator Theory and Harmonic Analysis.



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