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**Chaggara, Hamza; Koepf, Wolfram**

**Duplication coefficients via generating functions.** (English)

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The authors investigate a duplication type problem involving a polynomial set  $\{P_n\}(n \in \mathbb{N})$  for the relation  $P_n = \sum_{m=0}^n C_m(n, a)P_m(x)$ . A theorem of a general nature explicitly determines the associated coefficients for  $C_m(n, a)$  for a Boas-Buck type generating relationship involving the polynomial set  $\{P_n\}(n \in \mathbb{N})$ . Several interesting applications of the main result are depicted giving the closed-form expressions and recurrence relations satisfied by the duplication coefficients for the polynomials like, the Brenke polynomials, Brafman polynomials, Chaundy polynomials, Gould-Hopper polynomials, Shifted Jacobi polynomials, Charlier polynomials, Meixner polynomials and Krawtchouk polynomials.

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*Classification* :

- \***33C45** Orthogonal polynomials and functions of hypergeometric type
- 33C20** Generalized hypergeometric series
- 05A15** Combinatorial enumeration problems