

CHARACTERIZATIONS OF CERTAIN SEQUENCES OF q -POLYNOMIALS

P. NJIONOU SADJANG

Abstract. We provide a new characterization for those sequences of quasi-orthogonal polynomials which form also q -Appell sets.

Mathematics subject classification (2020): 33C65, 33C45, 33D05, 33D45, 11B68.

Keywords and phrases: Appell polynomial set, q -Bernoulli polynomials, q -Euler polynomials, orthogonal polynomials, quasi-orthogonal polynomials, q -difference equation.

REFERENCES

- [1] W. A. AL-SALAM, *q -Appell polynomials*, Ann. Mat. Pura Appl. vol 77 **4** (1967), pp. 31–45.
- [2] P. APPELL, *Une classe de polynomes*, Annales scientifique, Ecole Normale Sup., ser. 2, vol. 9 (1880), pp. 119–144.
- [3] T. S. CHIHARA, *On quasi-orthogonal polynomials*, Proc. Amer. Math. Soc., **8** (1957), pp. 765–767.
- [4] D. DICKINSON, *On quasi-orthogonal polynomials*, Proc. Amer. Math. Soc., **12** (1961), pp. 185–194.
- [5] T. ERNST, *A comprehensive treatment of q -calculus*, Birkhäuser (2012).
- [6] V. KAC, P. CHEUNG, *Quantum calculus*, Springer, (2001).
- [7] R. KOEKOEK, P. A. LESKY, R. F. SWARTTOUW, *Hypergeometric Orthogonal Polynomials and their q -Analogue*, Springer, Berlin, (2010).
- [8] M. RIESZ, *Sur le problème des moments. Troisième note*, Arkiv för Matematik Astronomi och Fysik, **17** (1923), pp. 1–52.
- [9] A. SHARMA, A. CHAK, *The basic analogue of a class of polynomials*, Revisita di Matematica della Università di Parma, vol 5 (1954) pp. 15–38.
- [10] I. M. SHEFFER, *On sets of polynomials and associated linear functional operator and equations*, Amer. J. Math. **53** (1931), pp. 15–38.
- [11] G. SZEGO, *Ein Beitrag zur Theorie der Thetafunktionen*, Preussische Akademie der Wissenschaften, Sitzung der phys.-math. Klasse, (1926), pp. 242–251.