

PADÉ TYPE APPROXIMANTS FOR SOME SPECIAL POWER SERIES OF TWO VARIABLES

¹ *Institute of Mathematics, Kyiv, Ukraine*
E-mail: apholub@gmail.com

² *Institute of Mathematics, Kyiv, Ukraine*
E-mail: anaweseka@gmail.com

By means of extension of V.K. Dzyadyk's method of generalized moment representation to case of two-dimensional number sequences [2] Padé type approximants are constructed and studied for functions of the form

$$f(z, w) = \frac{z^p}{z^p - w} \tilde{f}(z) - \frac{w^{1/p}}{p} \sum_{r=0}^{p-1} \frac{\xi_r^{(p)} \tilde{f}(w^{1/p} \xi_r^{(p)})}{z - w^{1/p} \xi_r^{(p)}},$$

where $\tilde{f}(z) = \frac{\Gamma(\nu+1)\Gamma(\sigma+1)}{\Gamma(\nu+\sigma+2)} {}_1F_1(1; \nu + \sigma + 2; z)$, a ${}_1F_1(a; b; z)$ – confluent hypergeometric function and $\xi_r^{(p)} = e^{2\pi i r/p}$, $r = \overline{0, p-1}$, – the p -th roots of unity.

- [1] Dzyadyk V.K., *A Generalization of Moment Problem*, *Dokl.Akad.Nauk Ukr.SSR*, Ser.A, **6** (1981), 8-12.
- [2] Holub A.P, Chernetska L.O. Two-dimensional generalized moment representations and rational approximants of functions of two variables [Ukrainian]. *Ukrain.Mat.Zh.* **65**(2013), no.8, 1035-1058.