AN EXTENSION BY MEANS OF ω–WEIGHTED CLASSES OF THE GENERALIZED RIEMANN–LIOUVILLE k–FRACTIONAL INTEGRAL INEQUALITIES

P. AGARWAL AND J. E. RESTREPO

Abstract. In this paper, we aim at establishing an analog of the recently published results [1] with the help of new $k-$ type fractional integral operator $R_\omega[f](t)$, which is introduced here by using the ω-weighted classes. Then we establish some new ω-weighted Pólya-Szegö type integral inequalities and ω-weighted fractional integral inequalities, which are the an analog of the recently published results [1].

REFERENCES

[1] AGARWAL, P., TARIBOON, J. AND NTOUYAS, S. K., *Some generalized Riemann-Liouville k-fractional integral inequalities*, J. Inequal. Appl. 2016, Article ID 122 (2016).

[2] CHEBYSHEV, P. L., *Sur les expressions approximatives des integrales definies par les autres prises entre les memes limites*, Proc. Math. Soc. Charkov 2 (1882), 93–98.

[3] ANASTASSIOU, G. A., *Advances on Fractional Inequalities. Springer Briefs in Mathematics*, Springer, New York (2011).

[4] BELARBI, S., DAHMANI, Z., *On some new fractional integral inequalities*, J. Inequal. Pure Appl. Math. 10(3), Article ID 86 (2009).

[5] DAHMANI, Z., MECHOUAR, O., BRAHAMI, S., *Certain inequalities related to the Chebyshev's functional involving a type Riemann-Liouville operator*, Bull. Math. Anal. Appl. 3(4), 38–44 (2011).

[6] KALLA, S. L., RAO, A., *On Grüss type inequality for hypergeometric fractional integrals*, Matematiche 66(1), 57–64 (2011).

[7] LAKSHMIKANTHAM, V., VATSALA, A. S., *Theory of fractional differential inequalities and applications*, Commun. Appl. Anal. 11, 395–402 (2007).

[8] NTOUYAS, S. K., AGARWAL, P., TARIBOON, J., *On Pólya-Szegö and Chebyshev types inequalities involving the Riemann-Liouville fractional integral operators*, J. Math. Inequal. 10(2), 491–504 (2016).

[9] SUDSUTAD, W., NTOUYAS, S. K., TARIBOON, J., *Fractional integral inequalities via Hadamard's fractional integral*, Abstr. Appl. Anal. 2014, Article ID 563096 (2014).

[10] SULAIMAN, W. T., *Some new fractional integral inequalities*, J. Math. Anal. 2(2), 23–28 (2011).

[11] WANG, G., AGARWAL, P., CHAND, M., *Certain Grüss type inequalities involving the generalized fractional integral operator*, J. Inequal. Appl. 2014, Article ID 147 (2014).

[12] GRÜSS, G., *Über das Maximum des absoluten Betrages von $\frac{1}{b-a}\int_a^b f(x)g(x)dx - \frac{1}{(b-a)^2}\int_a^b f(x)dx \int_a^b g(x)dx$*, Math. Z. 39 (1935), 215–226.

[13] PÓLYA, G., SZEGÖ, G., *Aufgaben und Lehrsatze aus der Analysis, Bd. 1. Die Grundlehren der mathematischen Wissenschaften. Bd. 19*, Springer, Berlin (1925).

[14] DRAGOMIR, S. S., DIAMOND, N. T., *Integral inequalities of Grüss type via Pólya-Szegö and Shisha-Mond results* in: East Asian Math. J. 19(1), 27–39 (2003).

[15] DIAZ, R., PARIGUAN, E., *On hypergeometric functions and Pochhammer k-symbol*, Divulg. Mat. 15, 179–192 (2007).

[16] MUBEEN, S., HABIBULLAH, G. M., *k-fractional integrals and application*, Int. J. Contemp. Math. Sci. 7, 89–94 (2012).

[17] SET, E., TOMAR, M., SARIKAYA, M. Z., *On generalized Grüss type inequalities for k-fractional integrals*, Appl. Math. Comput. 269, 29–34 (2015).

[18] SARIKAYA, M. Z., DAHMANI, Z., KIRIS, M. E., AHMAD, F., *(k;s)-Riemann-Liouville fractional integral and applications*, Hacet. J. Math. Stat. 45(1), 77–89 (2016).

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