NEW INTEGRAL RESULTS ON HOLDER TYPE INEQUALITIES

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Abstract. In this paper, using fractional integration, we present new fractional integral inequalities related to Holder inequality. We generalise a Wu's sharpness of Holder inequality for p, q integration. Then, as an application, we propose another way to derive the Holder inequality which is already established by Z. Dahmani on 2012 in General Math. Journal. Also, for our results, the classical Holder inequality is deduced as a special case.

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Key words. Integral inequality, Holder inequality, Riemann-Liouville integral.

REFERENCES

[1] S. Belarbi and Z. Dahmani, *On some new fractional intégral inequalities*, Journal of Inequalities in Pure and Applied Mathematics, **10** (2009), Article 86, 1–5.

[2] Z. Dahmani, *New inequalities in fractional integrals*, International Journal of Nonlinear Sciences, **9** (2010), 493–497.

[3] Z. Dahmani, *About some integral inequalities using Riemann-Liouville integrals*, Gen. Math., **20** (2012), 63–69.

[4] Z. Dahmani, O. Mechouar and S. Brahami, *Certain inequalities related to the Chebyshev's functional involving Riemann-Liouville operator*, Bulletin of Mathematical Analysis and Applications, **3** (2011), 38–44.

[5] Z. Dahmani and L. Tabharit, *On weighted Gruss type inequalities via fractional integrals*, Journal of Advanced Research in Pure Mathematics, **2** (2010), 31–38.

[6] S.S. Dragomir, *A generalization of Gruss inequality in inner product spaces and applications*, J. Math. Anal. Appl., **237** (1999), 74–82.

[7] R. Gorenflo and F. Mainardi, *Fractional calculus: integral and differential equations of fractional order*, Springer Verlag, Wien, 1997, 223–276.

[8] G. Hardy, J.E. Littlewood, G. Pólya, *Inequalities*, Second Ed., Cambridge University Press, UK, 1952.

[9] M.Z. Sarikaya and H. Yaldiz, *New generalization fractional inequalities of Ostrowski-Gruss type*, Lobachevskii J. Math., **34** (2013), 326–331.

[10] M.Z. Sarikaya, N. Aktan and H. Yildirim, *On weighted Chebyshev-Gruss like inequalities on time scales*, J. Math. Inequal., **2** (2008), 185–195.

[11] S.H. Wu, *Generalization of a sharp Holder's inequality and its application*, J. Math. Anal. Appl., **332** (2007), 741–750.

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