

SOME MULTIPLE INTEGRAL INEQUALITIES VIA THE DIVERGENCE THEOREM

SILVESTRU SEVER DRAGOMIR

Abstract. In this paper, by the use of the divergence theorem, we establish some inequalities for functions defined on closed and bounded subsets of the Euclidean space \mathbb{R}^n , $n \geq 2$.

Mathematics subject classification (2010): 26D15.

Keywords and phrases: Multiple integral inequalities, divergence theorem, Green identity, Gauss-Ostrogradsky identity.

REFERENCES

- [1] H. BUDAK AND M. Z. SARIKAYA, *Generalized weighted Čebysev and Ostrowski type inequalities for double integrals*, TWMS J. Appl. Eng. Math. **7** (2017), no. 2, 272–281.
- [2] H. BUDAK AND M. Z. SARIKAYA, *On weighted Grüss type inequalities for double integrals*, Commun. Fac. Sci. Univ. Ank. Sér. A1 Math. Stat., **66** (2017), no. 2, 53–61.
- [3] S. S. DRAGOMIR, *Double integral inequalities of Hermite-Hadamard type for h -convex functions on linear spaces*, Analysis (Berlin) **37** (2017), no. 1, 13–22.
- [4] S. S. DRAGOMIR, *Some inequalities for double and path integrals on general domains via Green's identity*, Preprint RGMIA Res. Rep. Coll. **22** (2019), Art. 55, 17 pp. Online <http://rgmia.org/papers/v22/v22a55.pdf>.
- [5] S. S. DRAGOMIR, *Some triple integral inequalities for functions defined on 3-dimensional bodies via Gauss-Ostrogradsky identity*, Preprint RGMIA Res. Rep. Coll. **22** (2019), Art. 60, 21 pp. Online <http://rgmia.org/papers/v22/v22a60.pdf>.
- [6] B. G. PACHPATTE, *New inequalities of Ostrowski and Grüss type for triple integrals*, Tamkang J. Math. **40** (2009), no. 2, 117–127.
- [7] D. B. PACHPATTE, *Some Ostrowski type inequalities for double integrals on time scales*, Acta Appl. Math. **161** (2019), 1–11.
- [8] M. SINGER, *The divergence theorem*, Online <https://www.maths.ed.ac.uk/~jmfp/Teaching/Lectures/divthm.pdf>.
- [9] W. T. SULAIMAN, *Integral inequalities concerning triple integrals*, J. Concr. Appl. Math. **8** (2010), no. 4, 585–593.