

ON SOME HILBERT–PACHPATTE INEQUALITIES WITH ALTERNATING SIGNS

TSERENDORJ BATBOLD

Abstract. Motivated by the results of Zhao and Cheung, we deduce a Hilbert-Pachpatte inequality with alternating signs involving non-homogeneous kernels. We also obtain a generalization of a related result known from the literature.

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REFERENCES

- [1] TS. BATBOLD, L. E. AZAR AND M. KRNIĆ, *A unified treatment of Hilbert-Pachpatte-type inequalities for a class of non-homogeneous kernels*, Appl. Math. Comput., **343**, (2019), 167–182.
- [2] TS. BATBOLD, M. KRNIĆ, J. PEČARIĆ AND P. VUKOVIĆ, *Further development of Hilbert-type inequalities*, Element, Zagreb, 2017.
- [3] G. S. DAVIES AND G. M. PETERSON, *On an inequality of Hardy's (II)*, Quart. J. Math., **15**, (1964), 35–40.
- [4] B. G. PACHPATTE, *On some new inequalities similar to Hilbert's inequality*, J. Math. Anal. Appl., **226**, (1998), 166–179.
- [5] B. G. PACHPATTE, *Inequalities similar to certain extensions of Hilbert's inequality*, J. Math. Anal. Appl., **243**, (2000), 217–227.
- [6] G. SZEGŐ, *Über eine verallgemeinerung des Dirichletschen integrals*, Math. Z., **52**, (1950), 676–685.
- [7] C.-J. ZHAO AND W.-S. CHEUNG, *Hilbert's inequalities with alternating signs*, Period. Math. Hung., in press, (2022), pp. 7.
- [8] C.-J. ZHAO AND W.-S. CHEUNG, *On Hilbert's inequalities with alternating signs*, J. Math. Inequal., **12**, 1 (2018), 191–200.
- [9] C.-J. ZHAO, L.-Y. CHEN AND W.-S. CHEUNG, *On some new Hilbert-type inequalities*, Math. Slovaca, **61**, (2011), 15–28.