

ON A NEW INEQUALITY SIMILAR TO HARDY–HILBERT’S INEQUALITY

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Abstract. In this paper, a new inequality similar to Hardy-Hilbert’s inequality with a best constant factor is given. As applications, we consider its equivalent form and their associated integral inequalities.

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REFERENCES

- [1] G. H. HARDY, J. E. LITTLEWOOD AND G. POLYA, *Inequalities*, Cambridge Univ. Press, Cambridge, 1952.
- [2] D. S. MITRINOVIC, J. E. PECARIC AND A. M. FINK, *Inequalities Involving Functions and Their Integrals and Derivatives*, Kluwer Academic Publishers, Boston, 1991.
- [3] YANG BICHENG AND GAO MINGZHE, *On a best value of Hardy-Hilbert’s inequality*, Adv. Math. **26** 2 (1997), 159–164.
- [4] GAO MINGZHE AND YANG BICHENG, *On the extended Hilbert’s inequality*, Proc. Amer. Math. Soc. **126** 3 (1998), 751–759.
- [5] YANG BICHENG AND L. DEBNATH, *On new strengthened Hardy-Hilbert’s inequality*, Internat. J. Math. Math. Sci. **21** 1 (1998), 403–408.
- [6] YANG BICHENG, *On an extension of Hardy-Hilbert’s inequality*, Chin. Annal. Math. **23A** (2002), 247–254.
- [7] YANG BICHENG, *On new generalizations of Hilbert’s inequality*, J. Math. Anal. Appl. **248** (2000), 29–40.
- [8] KUANG JICHENG AND L. DEBNATH, *On new generalizations of Hilbert’s inequality and their applications*, J. Math. Anal. Appl. **245** (2000), 248–265.
- [9] H. P. MULLHOLLAND, *Some theorems on Dirichlet series with positive coefficients and related integrals*, Proc. London Math. Soc. **29** 2 (1929), 281–292.
- [10] KUANG JICHENG, *Applied Inequalities*, Hunan Education Press, Changsha, 1992.