

SOME NEW HARDY TYPE INEQUALITIES WITH GENERAL KERNELS II

KRISTINA KRULIĆ HIMMELREICH AND JOSIP PEČARIĆ

Abstract. In this paper we prove new Hardy type inequalities with general kernels. We give new results that involve the Hardy–Hilbert and the Pólya–Knopp inequality. We also prove new results that involve n -convex functions.

Mathematics subject classification (2010): 26D10, 26D15.

Keywords and phrases: The Hardy inequality, the Hardy–Hilbert inequality, inequalities, Hardy type inequalities, the Green function, the Taylor theorem, convex function, kernel.

REFERENCES

- [1] E. K. GODUNOVA, *Inequalities based on convex functions*, Izv. Vysh. Uchebn. Zaved. Matematika **47** (4) (1965), 45–53; English transl. in Amer. Math. Soc., Transl., II Ser **88** (1970), 57–66.
- [2] G. H. HARDY, *Notes on some points in the integral calculus LX: An inequality between integrals* (60), Messenger of Math. **54** (1925), 150–156.
- [3] S. KAIJSER, L. NIKOLOVA, L. E. PERSSON AND A. WEDESTIG, *Hardy-Type Inequalities via Convexity*, Math. Inequal. Appl., **8** (2005), 403–417.
- [4] S. KAIJSER, L.-E. PERSSON, AND A. ÖBERG, *On Carleman and Knopp's Inequalities*, J. Approx. Theory **117** (2002), 140–151.
- [5] K. KRULIĆ, J. PEČARIĆ, AND L.-E. PERSSON, *Some new Hardy-type inequalities with general kernels*, Math. Inequal. Appl. **12** (3) (2009), 473–485.
- [6] K. KRULIĆ HIMMELREICH, J. PEČARIĆ, D. POKAZ, *Inequalities of Hardy and Jensen*, Element, Zagreb, 2013.
- [7] A. KUFNER, L. MALIGRANDA, AND L.-E. PERSSON, *The prehistory of the Hardy inequality*, Amer. Math. Monthly **113** (2006), No. 8, 715–732.
- [8] A. KUFNER, L. MALIGRANDA, AND L.-E. PERSSON, *The Hardy Inequality. About its History and Some Related Results*, Vydavatelsky Servis Publishing House, Pilsen, 2007.