

A NEW REFINEMENT OF THE KY FAN INEQUALITY

JÓZSEF SÁNDOR AND TIBERIU TRIF

Abstract. In this note we obtain a new refinement, involving the identric mean of several variables, of the inequality $G_n/G'_n \leq A_n/A'_n$, due to Ky Fan.

Mathematics subject classification (1991): 26D15.

Key words and phrases: Ky Fan inequality, means, multiple integrals.

REFERENCES

- [1] H. ALZER, *Verschärfung einer Ungleichung von Ky Fan*, Aequationes Math. **36** (1988), 246–250.
- [2] H. ALZER, *On an inequality of Ky Fan*, J. Math. Anal. Appl. **137** (1989), 168–172.
- [3] H. ALZER, *A new proof of Ky Fan's inequality*, Intern. J. Math. Ed. Sci. Tech. **20** (1989), 486–489.
- [4] H. ALZER, *A converse of Ky Fan's inequality*, C. R. Math. Rep. Acad. Sci. Canada **11** (1989), 1–3.
- [5] H. ALZER, *Refinements of Ky Fan's inequality*, Proc. Amer. Math. Soc. **117** (1993), 159–165.
- [6] H. ALZER, *The inequality of Ky Fan and related results*, Acta Appl. Math. **38** (1995), 305–354.
- [7] E. F. BECKENBACH AND R. BELLMAN, *Inequalities*, Springer-Verlag, Berlin, 1961.
- [8] B. C. CARLSON, *Some inequalities for hypergeometric functions*, Proc. Amer. Math. Soc. **17** (1966), 32–39.
- [9] N. LEVINSON, *Generalization of an inequality of Ky Fan*, J. Math. Anal. Appl. **8** (1964), 133–134.
- [10] E. NEUMAN, *Inequalities involving multivariate convex functions, II*, Proc. Amer. Math. Soc. **109** (1990), 965–974.
- [11] J. E. PEČARIĆ, *On an inequality of N. Levinson*, Univ. Beograd Publ. Elektrotehn. Fak. Ser. Mat. Fiz. **628–715** (1980), 71–74.
- [12] J. E. PEČARIĆ AND V. ŠIMIĆ, *Stolarsky-Tobey mean in n variables*, Math. Inequal. Appl. **2** (1999), 325–341.
- [13] A. O. PITTENGER, *The logarithmic mean in n variables*, Amer. Math. Monthly **92** (1985), 99–104.
- [14] T. POPOVICIU, *Sur une inégalité de N. Levinson*, Mathematica (Cluj) **6** (1964), 301–306.
- [15] J. SÁNDOR, *On the identric and logarithmic means*, Aequationes Math. **40** (1990), 261–270.
- [16] J. SÁNDOR, *On an inequality of Ky Fan*, Babeş-Bolyai Univ., Fac. Math. Phys., Res. Semin. **7** (1990), 29–34.
- [17] J. SÁNDOR, *On an inequality of Ky Fan, II*, Intern. J. Math. Ed. Sci. Tech. **22** (1991), 326–328.
- [18] J. SÁNDOR, *On an inequality of Ky Fan, III*, submitted.
- [19] C.-L. WANG, *On a Ky Fan inequality of the complementary A-G type and its variants*, J. Math. Anal. Appl. **73** (1980), 501–505.
- [20] W.-L. WANG AND P.-F. WANG, *A class of inequalities for symmetric functions (in Chinese)*, Acta Math. Sinica **27** (1984), 485–497.
- [21] Z. WANG AND J. CHEN, *A generalization of Ky Fan inequality*, Math. Balkanica **5** (1991), 373–378.