ON NECESSARY AND SUFFICIENT CONDITIONS FOR VALIDITY OF SOME CHEBYSHEV–TYPE INEQUALITIES

ANDRIY L. SHIDLICH

Abstract. We obtain necessary and sufficient conditions for validity of some Chebyshev-Type inequalities.

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REFERENCES

[1] D. S. MITRINOVIĆ, J. E. PEČARIĆ, A. M. FINK, *Classical and new inequalities in analysis*, Kluwer (1993), 740 p.

[2] P. L. CHEBYSHEV, *O priblizhennyh vyrazhenijah odnih integralov cherez drugie,* Soobschenija i Protokoly Zasedanij Matematicheskogo Obschestva pri Imperatorskom Khar'kovskom Universitete, **2** (1882), 93–98; Polnoe Sobranie Sochinenii P. L. Chebysheva. Moskva–Leningrad, 1978, **3**, 128–131.

[3] P. L. CHEBYSHEV, *Ob odnom rjade, dostavljajuschem predel'nye velichiny integralov pri razlozhenii podintegral'noi funkcii na mnozhiteli,* Prilozhenie k 57 tomy Zapisok Imp. Akad. Nauk, **4** (1883); Polnoe Sobranie Sochinenii P. L. Chebysheva. Moskva–Leningrad, 1978. **3**, 157–169.

[4] K. A. POSSÈ, *O dopolnitel'nom chlene v formule P.L. Chebysheva dlja priblizhennogo vyrazhenija odnogo opredelennogo integrala cherez drugie, vzjatyje v teh zhe predelah,* Soobschenija i Protokoly Zasedanij Matematicheskogo Obschestva pri Imperatorskom Khar'kovskom Universitete, **1** (1883), 5–17.

[5] K. A. ANDREIEF, *Neskol'ko slov po povodu teorem P.L. Chebysheva i V.G. Imshenetskogo ob opredelennyh integralah or proizvedenija funcij,* Soobschenija Khar'kovskogo Matematicheskogo Obschestva pri Imperatorskom Khar'kovskom Universitete, 1883, 110–123.

[6] N. JA. SONIN, *O nekotoryh neravenstvah otnosjascihsja k opredelennym integralam*, Zap. Imp. Akad. Nauk po Fiziko-matem. Otd., **6** (1898), 1–54.

[7] D. S. MITRINOVIĆ AND P. M. VASIĆ, *History, variations and generalisations of the Čebyšev inequality and the question of some priorities*, Univ. Beograd. Publ. Elektrotehn. Fak. Ser. Mat. Fiz., **461–497** (1974), 1–30.

[8] D. S. MITRINOVIĆ AND J. E. PEČARIĆ, *History, variations and generalisations of the Čebyšev inequality and the question of some priorities II,* Rad JAZU (Zagreb), **450**, 9 (1990), 139–156.

[9] A. I. STEPANETS AND A. L. SHIDLICH, *Best approximations of integrals by integrals of finite rank*, J. Approx. Theory, **162** (2010), 323–348.

[10] A. I. STEPANETS AND A. L. SHIDLICH, *Extremal problems for integrals of nonnegative functions*, in Russian, Nats. Akad. Nauk Ukrain., Inst. Mat. Preprint 2007, no. 3, 112 pp.

[11] J. F. STEFFENSEN, *En Ulighted mellem Middelve edier,* Mat. Tidsskrift, **1920 B**, 49–53.

[12] M. BIERNACKI, *Sur le 2 theoreme de la moyenne et sur l'integralite de Tschebycheff*, Ann. Univ. Mariae Curie-Sklodowska, **A4** (1950), 123–129.

[13] A. L. SHIDLICH, *Best n-term approximations by Λ-methods in the spaces S_φ^p*, in: *Extremal Problems in the Theory of Functions* (in Ukrainian), Institute of Mathematics, Ukrainian Academy of Sciences, Kyiv (2003), 283–306.

[14] A. I. STEPANETS AND A. L. SHIDLICH, *Best n-term approximations by Λ-methods in the spaces S_φ^p,* Ukr. Mat. Zh., **55**, 8 (2003), 1107–1126.