

MSC: 42A32, 33B30, 41A10, 11M06, 33B15

DOI: 10.21538/0134-4889-2022-28-4-164-176

ON SCIENTIFIC CONTACTS WITH SERGEI ALEKSANDROVICH TELYAKOVSKII

A. Yu. Popov

The paper presents some memories of the joint research with the prominent specialist in the theory of functions of a real variable Sergei Aleksandrovich Telyakovskii.

Keywords: S.A. Telyakovskii.

REFERENCES

1. Popov A.Yu., Telyakovskii S.A. On estimates for partial sums of Fourier series of functions of bounded variation. *Russian Math. (Iz. VUZ)*, 2000, vol. 44, no. 1, pp. 50–54.
2. Popov A.Yu., Telyakovskii S.A. Estimate for the integral of the absolute value of a sine series with monotone coefficients. *Proc. Steklov Inst. Math.*, 2013, vol. 280, pp. 263–267. doi: 10.1134/S0081543813010197.
3. Telyakovskii S.A. On partial sums of Fourier series of functions of bounded variation. *Proc. Steklov Inst. Math.*, 1997, vol. 219, pp. 372–381.
4. Belov A.S., Telyakovskii S.A. Refinement of the Dirichlet–Jordan and Young’s theorems on Fourier series of functions of bounded variation. *Sb. Math.*, 2007, vol. 198, no. 6, pp. 777–791. doi: 10.1070/SM2007v198n06ABEH003860.
5. Hardy G.H. Notes on some points in the integral calculus. LV: On the integration of Fourier series. *Messenger Math.*, 1922, vol. 51, pp. 186–192.
6. Young W.H. On the Fourier series of bounded functions. *Proc. Lond. Math. Soc. Ser. 2*, 1913, vol. 12, pp. 41–70. doi: 10.1112/plms/s2-12.1.41.
7. Bari N.K. *A Treatise on trigonometric series*. Oxford; New York: Pergamon Press, 1964. Original Russian text published in Bari N.K. *Trigonometricheskie ryady*. Moscow: Fizmatgiz Publ., 1961, 936 p.
8. Telyakovskij S.A. Certain properties of sine series with monotone coefficients. *Anal. Math.*, 1992, vol. 18, no. 4, pp. 307–323. doi: 10.1007/BF02204778 (in Russian).
9. Hartman P., Wintner A. On sine series with monotone coefficients. *J. London Math. Soc.*, 1953, vol. 28, pp. 102–104. doi: 10.1112/JLMS/S1-28.1.102.
10. Salem R. Détermination de l’ordre de grandeur à l’origine de certaines séries trigonométriques. *C. R. Acad. Sci., Paris*, 1928, vol. 186, pp. 1804–1806.
11. Izumi S. Some trigonometrical series, xii. *Proc. Japan Acad.*, 1955, vol. 31, no. 4, pp. 207–209. doi: 10.3792/pja/1195525743.
12. Telyakovskii S.A. On the behavior of sine series near zero. *Makedon. Akad. Nauk. Umet. Oddel. Mat.-Tehn. Nauk. Prilozi*, 2000, vol. 21, no. 1-2, pp. 47–54 (2002).
13. Aljančić S., Bojanić R., Tomić M. Sur le comportement asymptotique au voisinage de zéro des séries trigonométriques de sinus à coefficients monotones. *Publ. Inst. Math. (Beograd) (N.S.)*, 1956, vol. 10, pp. 101–120.
14. Popov A.Yu. Estimates of the sums of sine series with monotone coefficients of certain classes. *Math. Notes*, 2003, vol. 74, no. 6, pp. 829–840. doi: 10.1023/B:MATN.0000009019.66625.fb.
15. Solodov A.P. A sharp lower bound for the sum of a sine series with convex coefficients. *Sb. Math.*, 2016, vol. 207, no. 12, pp. 1743–1777. doi: 10.1070/SM8633.

16. Popov A.Yu., Solodov A.P. Exact lower estimate of the upper limit of the ratio of the sum of sine series with monotone coefficients to its majorant. *Moscow Univ. Math. Bull.*, 2014, vol. 69, no. 4, pp. 169–173. doi: 10.3103/S0027132214040056.
17. Popov A.Yu., Solodov A.P. Estimates with sharp constants of the sums of sine series with monotone coefficients of certain classes in terms of the Salem majorant. *Math. Notes*, 2018, vol. 104, no. 5, pp. 702–711. doi: 10.1134/S0001434618110111.
18. Popov A.Yu. Estimates of the least positive root of the sum of a sine series with monotone coefficients. *Math. Notes*, 2014, vol. 96, no. 5, pp. 753–766. doi: 10.1134/S0001434614110145.
19. Solodov A.P. Exact constants in Telyakovskii’s two-sided estimate of the sum of a sine series with convex sequence of coefficients. *Math. Notes*, 2020, vol. 107, no. 6, pp. 988–1001. doi: 10.1134/S0001434620050314.
20. Solodov A.P. Sharp two-sided estimate for the sum of a sine series with convex slowly varying sequence of coefficients. *Anal. Math.*, 2020, vol. 46, no. 3, pp. 579–603. doi: 10.1007/s10476-020-0047-5.
21. Alferova E.D., Popov A.Yu. Two-sided estimates of the L^∞ -norm of the sum of a sine series with monotone coefficients b_k via the l^∞ -norm of the sequence kb_k . *Math. Notes*, 2020, vol. 108, no. 4, pp. 471–476. doi: 10.1134/S0001434620090199.
22. Alferova E.D., Popov A.Yu. On the positivity of average sums of sine series with monotone coefficients. *Math. Notes*, 2021, vol. 110, no. 3-4, pp. 623–627. doi: 10.1134/S0001434621090327.
23. Popov A.Yu. Refinement of estimates of sums of sine series with monotone coefficients and cosine series with convex coefficients. *Math. Notes*, 2021, vol. 109, no. 5, pp. 808–818. doi: 10.1134/S0001434621050126.
24. Popov A.Yu., Solodov A.P. The negative parts of the sums of sine series with quasimonotonic coefficients. *Sb. Math.*, 2017, vol. 208, no. 6, pp. 878–901. doi: 10.1070/SM8764.
25. Stechkin S.B. Trigonometric series with monotone type coefficients. *Proc. Steklov Inst. Math. (Suppl.)*, 2001, vol. 7, suppl. 1, pp. S214–S224.
26. Popov A.Yu., Solodov A.P. Optimal two-sided estimates on the interval $[\pi/2, \pi]$ of the sum of the sine series with convex coefficient sequence. *Math. Notes*, 2022, vol. 112, no. 2, pp. 328–331. doi: 10.1134/S0001434622070380.
27. Jordan C. Sur la séries de Fourier. *C. R. Acad. Sci.*, 1881, vol. 92, pp. 228–230.
28. Stechkin S.B. The approximation of continuous functions by Fourier sums. *Uspekhi Mat. Nauk*, 1952, vol. 7, no. 4, pp. 139–141 (in Russian).
29. Telyakovskii S.A. On the works of S.B. Stechkin on approximation of periodic functions by polynomials. *Fundam. Prikl. Mat.*, 1997, vol. 3, no. 4, pp. 1059–1068 (in Russian).
30. Zhuk V.V. *Approximatsiya periodicheskikh funktsii* [Approximation of periodic functions]. Leningrad: Leningrad Univ. Publ., 1982, 368 p.
31. Gavriluk V.T., Stechkin S.B. Approximation of continuous periodic functions by Fourier sums. *Proc. Steklov Inst. Math.*, 1987, vol. 172, pp. 119–142.
32. Shakirov I.A. About the optimal replacement of the Lebesgue constant Fourier operator by a logarithmic function. *Lobachevskii J. Math.*, 2018, vol. 39, no. 6, pp. 841–846. doi: 10.1134/S1995080218060185.

Received September 5, 2022

Revised October 18, 2022

Accepted October 24, 2022

Funding Agency: This work was carried out at Moscow State University and was supported by the Russian Science Foundation (project no. 22-11-00129).

Anton Yur’evich Popov, Dr. Phys.-Math. Sci., Lomonosov Moscow State University, Moscow Centre of Fundamental and Applied Mathematics, Moscow, 119991 Russia, station@list.ru.

Cite this article as: A. Yu. Popov. On scientific contacts with Sergei Aleksandrovich Telyakovskii. *Trudy Instituta Matematiki i Mekhaniki UrO RAN*, 2022, vol. 28, no. 4, pp. 164–176.