

# Convergence and divergence of Fourier series in systems of characters for compact groups

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It will be discussed the following topics: Antonov-Sjölin-Soria type extrapolation in the setting of locally compact groups and its application to a.e. convergence of Vilenkin-Fourier series; Konyagin's problem on a.e. convergence of sub-sequences of Walsh-Fourier sums; Kanznelson's type theorems for sets of divergence of Fourier series in systems of characters for compact Abelian groups; multi-parameter version of Stein's weak type maximal principle and its applications for multiple Fourier series and ergodic averages.

The presentation is based on the papers [1-4] of the author.

## References

- [1] On Sjölin–Soria–Antonov type extrapolation for locally compact groups and a.e. convergence of Vilenkin–Fourier series, *Acta Math. Hungar.* **163** (2021), No. 2, 429-436.
- [2] On the divergence of subsequences of partial Walsh-Fourier sums, *J. Math. Anal. Appl.* **497** (2021), No. 2, 124900 (joint with U. Goginava).
- [3] On the divergence sets of Fourier series in systems of characters of compact Abelian groups, *Math. Notes* **112** (2022), No. 1, 100–108.
- [4] Almost everywhere convergence of nets of operators and weak type maximal inequalities, *Fund. Math.* **262** (2023), No. 3, 287-304.