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Fejér sums and Fourier coefficients of periodic measures. (English. Russian original)

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Summary: The Fejér sums of periodic measures and the norms of the deviations from the limit in the von Neumann ergodic theorem are calculating in terms of corresponding Fourier coefficients, in fact, using the same formulas. As a result, well-known estimates for the rates of convergence in the von Neumann ergodic theorem can be restated as estimates for the Fejér sums at a point for periodic measures. In this way, natural sufficient conditions for the polynomial growth and polynomial decay of these sums can be obtained in terms of Fourier coefficients. Besides, for example, it is shown that every continuous 2π-periodic function is uniquely determined by its sequence of Fejér sums at any two points whose difference is incommensurable with π.

MSC:

37A45 Relations of ergodic theory with number theory and harmonic analysis (MSC2010)

42A16 Fourier coefficients, Fourier series of functions with special properties, special Fourier series

Keywords:

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