
Barcelona Analysis Seminar

2021–2022

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Room. CRM A1 (Universitat Autònoma de Barcelona)

Online streaming (Microsoft Teams). Click here to join.

Some estimates of Weyl sums and their applications in harmonic analysis

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We obtain estimates of Weyl sums depending on the parameters of rational approximations to the leading coefficient of the polynomial. These estimates are used to solve two problems of harmonic analysis: to improve the John-Nirenberg inequality for Riemann type series, thereby extending the corresponding result of Chamizo, Córdoba and Ubis for the quadratic case, and to establish a criterion of uniform convergence of the series $\sum_{k=1}^{\infty} c_k \sin k^{\alpha}x$ for positive integer α and monotone $\{c_k\}$. Moreover, it turns out that the result for odd integer α still holds if we replace k^{α} by any odd rational polynomial of degree α .