

Name: Alexei Shadrin (University of Cambridge, UK)

Title: Markov-type inequalities and their applications

Abstract:

The classical Markov inequality estimates the norm of the k -th derivative of an algebraic polynomial of degree n in terms of the polynomial itself, so that $|p(x)| \leq 1$ on $[-1,1]$ implies $|p^{(k)}| \leq n^k$, $|p''| \leq \frac{1}{3}n^2(n^2-1)$, etc.

In our talk, we discuss recent and not very recent advances in Markov-type inequalities which include Markov inequalities for splines and other Chebyshev systems, polynomial inequalities with weighted norms and inequalities for discrete sets.

Some applications of those inequalities to the problems of optimal recovery of functions from their values or Fourier samples will be considered including numerical stability issues.