

## Sampling recovery and sharp norm estimates of projection operators

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Special session: Stochastic Computation and Complexity

We consider the problem of optimal recovery of bounded complex-valued functions from their samples.

In the talk, we will discuss new sharp bounds for the  $n$ -th linear sampling numbers in  $L_p$  and conditions under which linear sampling algorithms are optimal among all (possibly non-linear) algorithms [1].

Besides, we show that there are sampling projections onto arbitrary  $n$ -dimensional subspaces of the space of bounded functions with at most  $2n$  samples and norm of order  $\sqrt{n}$  [2]. This gives a more explicit form of the Kadets-Snobor theorem for the uniform norm.

- [1] Krieg, David, Pozharska, Kateryna, Ullrich, Mario, & Ullrich, Tino (2023). Sampling recovery in  $L_2$  and other norms. arXiv. <https://doi.org/10.48550/arxiv.2305.07539>
- [2] Krieg, David, Pozharska, Kateryna, Ullrich, Mario, & Ullrich, Tino (2024). *Sampling projections in the uniform norm*. arXiv. <https://doi.org/10.48550/arxiv.2401.02220>