

Approximation properties of the sampling Kantorovich operators: regularization, saturation, inverse results and Favard classes in L^p -spaces

Danilo Costarelli ^a, Gianluca Vinti ^b

^a Department of Mathematics and Computer Science, University of Perugia (Italy)
danilo.costarelli@unipg.it, gianluca.vinti@unipg.it

In the present talk, a characterization of the Favard classes for the sampling Kantorovich operators based upon bandlimited kernels has been discussed ([1]).

In order to achieve the above result, a wide preliminary study has been necessary. First, suitable high order asymptotic type theorems in L^p -setting, $1 \leq p \leq +\infty$, have been proved. Then, the regularization properties of the sampling Kantorovich operators have been investigated. Further, for the order of approximation of the sampling Kantorovich operators, quantitative estimates based on the L^p modulus of smoothness of order r have been established. As a consequence, the qualitative order of approximation is also derived assuming f in suitable Lipschitz and generalized Lipschitz classes. Finally, an inverse theorem of approximation has been stated, together with a saturation result, allowing to obtain the desired characterization.

References

- [1] D. Costarelli, G. Vinti, *Approximation properties of the sampling Kantorovich operators: regularization, saturation, inverse results and Favard classes in L^p -spaces*, in print in: *Journal of Fourier Analysis and Applications*, (2022) DOI: 10.1007/s00041-022-09943-5.