On transfinite interpolation by low-rank functions

Nira Dyn

School of Mathematical Sciences, Tel-Aviv Univ., Tel-Aviv, Israel

`niradyn@post.tau.ac.il`

In this talk we present a method for interpolating transfinite data along $n \times n$ gridlines of a 2D rectangular grid, by rank-n bivariate functions, namely by functions of the form $\sum_{i=1}^{n} f_i(x_1)g_i(x_2)$. Our method derives the values of such an interpolating function as ratios between two determinants. We present also bounds on the interpolation error, that achieve the optimal rate of convergence of approximation by rank-n functions, and an idea as to how these bounds are derived.

Joint work with: Bert Juettler, Dominik Mokris.