



THE WEIZMANN INSTITUTE OF SCIENCE  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Seminar in Geometry and Topology

Room 290C ,Ziskind Building  
on Tuesday, May 17, 2016  
at 16:15

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Optimal Interpolation in approximation theory, nonparametric regression and  
optimal design

Abstract:

For some rectangular Hardy classes of analytic functions, an optimal method of interpolation has been previously found, within the framework of Optimal Recovery. It will be shown that this method of interpolation, based on the Abel-Jacobi elliptic functions, is also optimal, according to corresponding criteria of Nonparametric Regression and Optimal Design.

In a non-asymptotic setting, the maximal mean squared error of the optimal interpolant is evaluated explicitly, for all noise levels away from 0. In these results, a pivotal role is played by an interference effect, in which both the stochastic and deterministic parts of the interpolant exhibit an oscillating behavior, with the two oscillating processes mutually subduing each other.