

Seminario

Giovedì 21 Novembre 2013 ore 16.00 in Numlab

Title: Newton Basis: Adaptive Calculation Algorithm and Applications.

Guglielmo Silvia

Abstract: Since it is well-known the standard bases of kernel translates are badly conditioned while the interpolation itself is not unstable in function space, now we present a strategy for overcoming the ill-conditioning of linear system arising from radial basis function or kernel techniques. To come up with a more useful it is adopted the strategy known from Newton's interpolation formula, using generalized divided differences and a recursively computable set of basis functions vanishing at increasingly many data points.

We, first of all, consider the stability of evaluation of interpolants and the reasons why one should look for better bases. Later we construct a new type of basis halfway between the Lagrange case and the standard kernel basis. We shall do this by mimicking the Newton interpolation formula. Finally we present an adaptive calculation algorithm of Newton bases due to Maryam Pazouki and Robert Schaback, and an application.