Moving Least Squares Approximation on Spheres

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In this talk we consider the Moving Least Squares Approximation scheme on spheres. We introduce a result from Wendland which states, that the error of the MLS approximation decays with order δ^{L+1}, if the ansatz space consists of all spherical harmonics up to degree L. Here δ denotes the support radius of the weight function.

Later in the talk we will show, that the same order of approximation is attained, if the ansatz space only consists of spherical harmonics of every second degree up to L. It will turn out, that this also leads to significantly higher numerical stability.

References

[1] Holger Wendland. Moving least squares approximation on the sphere. *Mathematical Methods for Curves and Surfaces*, 2001.