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VERY HIGH ORDER MESH ADAPTATION

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Abstract. This paper addresses the construction of anisotropic metrics from higher-order interpolation error in 2 dimensions [2, 3] for mesh adaptation. Our approach is based on homogeneous polynomials that model a local interpolation error. Optimal orientation and ratios are found by using the Sylvester decomposition [4]. Then we apply a global calculus of variation to get the optimal metric field minimizing the $\mathbf{L}^p$ norm of the interpolation error. We illustrate this approach on 3D numerical examples.

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