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*Meshfree Integration Techniques for Scattered Data on Curves and Surfaces*

We present high-order, meshfree methods for integration on curves and surfaces. Accurately integrating functions defined on surfaces is a challenging task, particularly for implicitly-defined surfaces and those without a readily-available mesh. Our approach is quite general and works as long as scattered points can be generated on the curve or surface of interest. We examine the methods for a variety of surfaces, including those with and without boundary and those defined by level sets. Also of note for our approach is that integration weights can be generated for any point arrangement; this is useful in the case that function data is only given on a specific sample of points. Analytical convergence results are also presented. Lastly, we use the generated integration weights to impose constraints on partial differential equations on curves or surfaces.