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Francis J. Narcowich* (fnarc@math.tamu.edu), Mathematics Department, Texas A&M University, College Station, TX 77843-3368. *Kernel-based Quadrature on Spheres and Homogeneous Spaces.*

The purpose of this talk is to discuss stable, accurate quadrature formulas for continuous functions defined on \mathbb{S}^n , $SO(3)$, and for compact homogeneous manifolds in general. These formulas, which are derived by a method analogous to that used by Sommariva and Womersley for \mathbb{S}^2 , employ a class of invariant positive definite and conditionally positive definite kernels defined on C^∞ Riemannian manifolds. These kernels were recently introduced and studied by E. Fuselier, T. Hangelbroek, F. J. Narcowich, X. Sun, J. D. Ward and G. Wright. The analysis of both the stability and accuracy of these formulas is based on the properties of these kernels. On \mathbb{S}^2 , the class includes the (restricted) thin-plate splines. This talk represents joint work with several of the aforementioned colleagues. (Received December 06, 2011)