1012-42-96 **Pencho Petrushev** (pencho@math.sc.edu), Department of Mathematics, University of South Carolina, Columbia, SC 29208, and **Yuan Xu*** (yuan@math.uoregon.edu), Department of Mathematics, University of Oregon, Eugene, OR 97403. *Localized polynomial kernels and frames on the ball in R^d.*

Almost exponentially localized polynomial kernels are constructed on the unit ball B^d in $\mathbb{R}^d$ with weights $W_\mu(x) = (1-|x|^2)^{\mu-1/2}$, $\mu \ge 0$, by smoothing out the coefficients of the corresponding orthogonal projectors. These kernels are utilized to the design of cubature formulae on B^d with respect to $W_\mu(x)$ and to the constriction of polynomial tight frames in $L^2(B^d, W_\mu)$ whose elements have nearly exponential localization. (Received September 12, 2005)