

# Localized Directional Frames on Spheres

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## Abstract

In the existing literature, the study of localized polynomial frames on higher dimensional spheres is usually restricted to the case of isotropic wavelets. In this talk, we construct a wide class of frames for  $L^2(\mathbb{S}^d)$  which includes the well known zonal systems, but also allows for anisotropic designs. In particular, we demonstrate how one can obtain discretized polynomial wavelets that are well localized in space and highly directional.