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Bernhard G Bodmann* (bgb@math.uh.edu), 651 PGH, Department of Mathematics,
University of Houston, Houston, TX 77204, and **Gitta Kutyniok** and **Xiaosheng Zhuang**.

Gabor shearlets: tightness, low redundancy and sparse approximations.

In this talk, we introduce Gabor shearlets, a variant of shearlet systems, which are based on a different group representation than previous shearlet constructions: they combine elements from Gabor and wavelet frames in their construction. As a consequence, they can be implemented with standard filters from wavelet theory in combination with standard Gabor windows. Unlike the usual shearlets, the new construction can achieve a redundancy as close to one as desired. Our construction follows the general strategy for shearlets. First we define group-based Gabor shearlets and then modify them to a cone-adapted version. In combination with Meyer filters, the cone-adapted Gabor shearlets constitute a tight frame and provide low-redundancy sparse approximations of cartoon-like functions. (Received August 23, 2013)