1137-42-259 **Kasso A. Okoudjou** and **Shujie Kang***, 4176 Campus Drive - William E. Kirwan Hall, College Park, MD 20742. *Grassmannian Frames and Minimizers of the p-Frame Potentials.* Preliminary report.

The $p$-frame potential of a frame $\{v_i\}_{i=1}^N \subset \mathbb{R}^d$ is defined as $FP_{p,N,d} = (\sum_{i<j} |\langle v_i, v_j\rangle|^p)^{1/p}$. Grassmannian frames are minimizers of the frame potential when $p = \infty$. More generally, one can ask if Grassmannian frames also minimize the $p$-frame potentials for $2 \leq p < \infty$. We report on recent progress made in solving this question in $\mathbb{R}^2$. There have been results showing this is true when $p$ is even, and we conjecture that the statement also holds when p is odd. We shall motivate our approach by focusing on the case $p = 3$ and $N = 5$. Our preliminary results rely on certain techniques developed by Cohn and Kumar involving absolute continuous function and ultraspherical polynomials. (Received February 05, 2018)