1129-46-398 **J. Alejandro Chávez-Domínguez***, Department of Mathematics, University of Oklahoma, Norman, OK 73019, and **Daniel Freeman** and **Keri Kornelson**. *Finite unit norm tight frames for Banach spaces via a frame potential.* Preliminary report.

Frames for Hilbert spaces, as overcomplete versions of bases, are quite useful in applications because they provide decompositions that are more robust. Those frames that consist of vectors of norm one and are additionally tight have even more computational advantages, e.g. they provide fast convergence for said decompositions.

Benedetto and Fickus have developed a *frame potential*, a numerical quantity that can be assigned to a collection of finitely many vectors in a Hilbert space, which characterizes unit norm tight frames as follows: a sequence of k norm-one vectors in an n-dimensional Hilbert space (where $k \geq n$) has frame potential at least k^2/n, with equality if and only if the sequence is a tight frame (and there always exist frames achieving this bound).

The main result of this paper is a generalization of the aforementioned result to the context of finite-dimensional Banach spaces. We define a frame potential for a sequence of k norm-one vectors in an n-dimensional Banach space (where $k \geq n$), which generalizes the Hilbert-space notion. This generalized potential is also bounded below by k^2/n, with equality if and only if we the sequence is a tight frame. For a wide class of spaces, we show that the equality case does occur. (Received March 20, 2017)