1056-47-1084 **Victor Kaftal*** (kaftal@math.uc.edu) and **David R Larson** (larson@math.tamu.edu).
Perturbations of finite frames and projections.

We present an algorithm for perturbing finite frames of Hilbert space vectors into new frames with assigned vector lengths and with the same frame operator.

If no two vectors of the original frame are orthogonal then we have control on the distance of the two frames. For instance if we start with a Parseval frame where the variation of the norms of the vectors is sufficiently small and the angle between the vectors is sufficiently far from $\frac{\pi}{2}$, then our algorithm provides an equal norm Parseval frame close to the original frame.

The algorithm is based on matricial techniques combined with convexity methods from majorization theory. (Received September 20, 2009)