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Linda J Patton* (lpatton@calpoly.edu), Mathematics Department, Cal Poly, San Luis Obispo, CA 93407, and **Mihai Putinar**. *The numerical range of a nilpotent n -tuple of operators*. Preliminary report.

Haagerup and de la Harpe have shown that if an operator $T \in \mathcal{B}(H)$ satisfies $T^d = 0$, then

$$\sup\{|\langle T\xi, \xi \rangle| : \xi \in H, \|\xi\| = 1\} \leq \cos\left(\frac{\pi}{d+1}\right)\|T\|;$$

furthermore, Fejer's inequality for non-negative trigonometric polynomials is a consequence of this result. In this talk, an analogous result for nilpotent operator n -tuples will be used to derive results about polynomials in several variables.

This is joint work with Mihai Putinar. (Received February 21, 2005)