1087-46-101 **Greg Knese*** (geknese@bama.ua.edu), University of Alabama, Department of Mathematics, Box 870350, Tuscaloosa, AL 35487-0350, and **Jeffrey S Geronimo** and **Plamen Iliev**. *Polynomials with no zeros on a face of the bidisk.* Preliminary report.

The classical Fejér-Riesz lemma says that a positive trigonometric polynomial can be factored as the squared modulus of a stable polynomial (i.e. a polynomial with no zeros in the closed unit disk). This lemma does not generalize in a straightforward way to two variables. Generalizing work in two variables of Geronimo and Woerdeman, Geronimo and Iliev recently gave a characterization of when such a factorization is possible in two variables where we require the trig polynomial to be the squared modulus of a polynomial that is nonvanishing on $\mathbb{T} \times \overline{\mathbb{D}}$ (a face of the bidisk). We present new refinements of this work which employ techniques from orthogonal polynomials, operator theory, and Hilbert space geometry. An interesting sums of squares formula is a corollary. (Received November 30, 2012)