1046-11-579 **Donald Mills*** (dmills@wittenberg.edu), Department of Mathematics, Wittenberg University, Springfield, OH 45501-0720. *Polynomials Built Using Lucas Sequence Pairs.* Preliminary report.

Recall that if p, $q \in \mathbb{Z}$ are chosen so that $d = p^2 - 4q > 0$, then the zeroes $a = (p + \sqrt{d})/2$ and $b = (p - \sqrt{d})/2$ of the polynomial $l(x) = x^2 - px + q$ may be used to construct the real-valued sequences $\{u_n\}$ and $\{v_n\}$, n natural, with $u_n = (a^n - b^n)/(a - b)$ and $v_n = a^n + b^n$ for each n. Said sequences are called *Lucas sequences* (LS for short). The speaker shall call these sequences the LS-u and LS-v sequences, respectively.

Now define the following polynomial sequence. Set $L_{u,0}(x) = u_1$ and $L_{u,m}(x) = xL_{u,m-1}(x) + u_{m+1}$ for $m \geq 1$, with $L_{u,m}(x) = \sum_{k=0}^{m} u_{k+1}x^{m-k}$. Call $L_{u,m}(x)$ the LS-u polynomial of order m.

The speaker (with D. Garth and P. Mitchell) has answered several questions regarding the LS-u polynomial sequence formed by the Fibonacci sequence. While their queries regarding zeroes of said polynomials were answered independent of consideration of the LS-v sequence, answers to questions pertaining to Mahler measures of related polynomials relied extensively upon the intimate relationship between said sequences.

This talk focuses upon the speaker's initial investigations into answering questions regarding zeroes for a general LS-u polynomial sequence. (Received September 08, 2008)