1050-05-170   **John Caughman*** (`caughman@pdx.edu`), 3532 SE Long St, Portland, OR 97202. *An Inequality for Leonard Systems.* Preliminary report.

Let $\Phi = (A; A^*; \{E_i\}_{i=0}^d; \{E_i^*\}_{i=0}^d)$ be a Leonard system over the real numbers $\mathbb{R}$ with eigenvalue sequence $\theta_0, \theta_1, \ldots, \theta_d$. Let $a_i = \mathrm{tr}(E_i^* A)$ for $0 \le i \le d$ and $x_i = \mathrm{tr}(E_i^* A E_{i-1}^* A)$ for $0 \le i \le d$. Define polynomials $p_0, p_1, \ldots, p_{d+1}$ by the three-term recurrence $\lambda p_i = p_{i+1} + a_i p_i + x_i p_{i-1}$ for $0 \le i \le d$, where $p_0 = 1$ and $x_0 = p_{-1} = 0$. We consider conditions on Φ that imply the absolute value

$$\left| \frac{p_i(\theta_j)}{p_i(\theta_0)} \right| \le 1$$

for all $0 \le i, j \le d$. An application of these results could resolve a conjecture concerning the arithmetic Grassmanian $G(2, N)$. (Received March 03, 2009)