1023-15-1060 **Jun Ji*** (jji@kennesaw.edu), Department of Mathematics and Statistics, Kennesaw State University, 1000 Chastain Road, Kennesaw, GA 30144, and **Bo Yang** (byang@kennesaw.edu), Department of Mathematics and Statistics, Kennesaw State University, 1000 Chastain Road, Kennesaw, GA 30144. *Eigenvalue Comparisons for a Class of Boundary Value Problems of Second Order Difference Equations.* Preliminary report.

In this talk we will consider the boundary value problem for the second order difference equation

$$\begin{aligned} \Delta(r_{i-1}\Delta y_{i-1}) - b_i y_i + \lambda a_i y_i &= 0, \quad 1 \le i \le n, \\ y_0 - \tau y_1 = y_{n+1} - \delta y_n &= 0, \end{aligned} \tag{1}$$

where the forward difference operator Δ is defined as $\Delta y_i = y_{i+1} - y_i$.

If λ is a number (maybe complex) such that the problem has a nontrivial solution $\{y_i\}_{i=0}^{n+1}$, then λ is said to be an eigenvalue of the problem, and the corresponding nontrivial solution $\{y_i\}_{i=0}^{n+1}$ is called an eigenvector of the problem corresponding to λ.

In this study we do not require the positiveness of $\{a_k\}_{k=1}^{n}$. We will focus on the structure of eigenvalues of this problem and comparisons of all eigenvalues as the coefficients $\{a_i\}_{i=1}^{n}, \{b_i\}_{i=1}^{n}, \{r_i\}_{i=0}^{n}$ and the parameters τ, δ change. (Received September 24, 2006)