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Kristen K. Abernathy* (kristenkobylus@hotmail.com) and **Jesus Rodriguez.** *Nonlocal boundary value problems for discrete systems.*

In this talk, we study nonlinear discrete systems of the form

$$y(k+n) + \cdots + a_0(k)y(k) = f(y(k)) + \sum_{l=0}^J w(k,l)g(l, y(l), \cdots, y(l+n-1))$$

subject to the multipoint boundary conditions

$$\sum_{j=1}^n b_{ij}(0)y(j-1) + \sum_{j=1}^n b_{ij}(1)y(j) + \cdots + \sum_{j=1}^n b_{ij}(J)y(j+J-1) = 0$$

for $i = 1, 2, \cdots, n$. The criteria we present depends on the size of the nonlinearity and the set of solutions to the corresponding linear, homogeneous boundary value problem. Our analysis is based on the Lyapunov-Schmidt Procedure and Brouwer's Fixed Point Theorem. The results presented extend the previous work of D. Etheridge and J. Rodriguez, and J. Rodriguez and P. Taylor. (Received July 31, 2011)