

1086-34-369

**Douglas R. Anderson\*** (andersod@cord.edu), 901 Eighth Street S., Department of Mathematics, Moorhead, MN 56562. *First-order nonlinear nonlocal boundary value problem with  $p$ -Laplacian.*

Conditions for the existence of at least three positive solutions to the first-order nonlinear  $p$ -Laplacian problem with a nonlinear nonlocal boundary condition given by

$$\begin{aligned} [\phi_p(y)]'(t) - r(t)[\phi_p(y)](t) &= \sum_{i=1}^m f_i(t, y(t)), \quad t \in [0, 1], \\ \lambda[\phi_p(y)](0) &= [\phi_p(y)](1) + \sum_{j=1}^n \Lambda_j(\tau_j, [\phi_p(y)](\tau_j)), \quad \tau_j \in [0, 1], \end{aligned}$$

are discussed, for sufficiently large  $\lambda > 1$  and  $r \geq 0$ . The Leggett-Williams fixed point theorem is utilized. (Received August 26, 2012)