1067-34-915   **Britney Hopkins*** (`bhopkins3@uco.edu`). *The existence of Multiple solutions for a fourth order nonhomogeneous boundary value problem.*

In this talk we consider the fourth order boundary problem, $u^{(4)} = \lambda h(t, u, u', u'', u''')$, $t \in (0, 1)$, subject to the boundary conditions, $u(0) = u''(0) = 0$, $u'(1) = a$, and $u'''(1) = -b$, where $\lambda, a, b \geq 0$, $a + b > 0$, and $h : [0, 1] \times [0, \infty) \times (-\infty, 0] \times [0, \infty) \times (-\infty, 0] \to [0, \infty)$ is continuous. By transforming the fourth order problem into a system of second order equations with homogeneous boundary conditions and then applying the Guo-Krasnosel'skii Fixed Point Theorem, we show the existence of at least three positive solutions. (Received September 16, 2010)