1116-34-2349   **Olivia Bennett**, **Daniel Brumley**, **Britney Hopkins**, **Kristi Karber** and **Thomas Milligan***, 100 N. University Dr, Dept. of Mathematics and Statistics, University of Central Oklahoma, Edmond, OK 73034. *The Multiplicity of Solutions for a Class of Fourth Order Differential Equations.*

Making use of the Guo-Krasnosel'skii Fixed Point Theorem, we establish the existence of multiple solutions for the fourth order differential equation, $u^{(4)} = \lambda h(t, u(t), u'(t), u''(t), u'''(t))$, for $t \in (0, 1)$ with right focal boundary conditions $u(0) = u''(0) = 0$, $u'(1) = a$, and $u'''(1) = -b$, where $h : [0, 1] \times [0, \infty)^2 \times (-\infty, 0]^2 \to [0, \infty)$, $a, b, \lambda \geq 0$, and $a + b > 0$. Our technique involves examining an analogous system of second order differential equations satisfying homogeneous boundary conditions prior to applying the aforementioned fixed point theorem. (Received September 22, 2015)

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