

1063-34-21

**Adolfo J Rumbos\*** (arumbos@pomona.edu), Department of Mathematics, Pomona College, 610 N. College Avenue, Claremont, CA 91711, and **David A Bliss** (david.a.bliss@jpl.nasa.gov), School of Mathematics, Claremont Graduate University, Claremont, CA 91711. *Periodic Boundary Value Problems and the Fučík Spectrum under Conditions of Resonance*. Preliminary report.

We prove the existence of solutions to the nonlinear  $2\pi$ -periodic problem

$$\begin{aligned}u''(x) + \mu u^+(x) - \nu u^-(x) + g(x, u(x)) &= f(x), \quad x \in (0, 2\pi), \\u(0) &= u(2\pi) \\u'(0) &= u'(2\pi)\end{aligned}$$

where the point  $(\mu, \nu)$  is a point of the Fučík spectrum and the primitive of the nonlinearity,  $g(x, u(x))$ , satisfies a Landesman-Lazer type condition. We use a variational method based on the generalization of the Saddle Point Theorem. (Received June 23, 2010)