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Leandro Recova and **Adolfo J Rumbos*** (arumbos@pomona.edu), Department of Mathematics, Pomona College, 640 N. College Avenue, Claremont, CA 91711. *Multiple Solutions to Superlinear, Asymmetric, Semilinear Elliptic Problems via Morse Theory*. Preliminary report.

We present multiplicity results for the boundary value problem

$$\begin{cases} -\Delta u = g(x, u) & \text{in } \Omega; \\ u = 0 & \text{on } \partial\Omega, \end{cases}$$

where Ω is a smooth bounded domain in \mathbb{R}^N ($N \geq 2$) and $g: \bar{\Omega} \times \mathbb{R} \rightarrow \mathbb{R}$ is a differentiable function with $g(x, 0) = 0$ for all $x \in \Omega$. We assume that $g(x, s)$ is asymptotically linear in s for large negative values of s and that $g(x, s)$ has superlinear, but subcritical, growth in s for large positive values of s . We consider both asymptotic resonance and non-resonance for negative values of s . We use minimax methods in critical point theory and infinite-dimensional Morse theory. (Received September 04, 2014)