998-35-172 Mythily Ramaswamy (mythily@math.tifrbng.res.in), TATA Institute for Fundamental Research, IIsc Campus, 560012 Bangalore, India, and Ratnasingham Shivaji\* (shivaji@ra.msstate.edu), Department of Mathematics, Mississippi State University, Mississippi State, MS 39762. Multiple Positive Solutions for Classes of p-Laplacian Equations.

We study positive  $C^1(\overline{\Omega})$  solutions to classes of

boundary value problems of the form

$$-\Delta_p u = \lambda f(u) \text{ in } \Omega$$
$$u = 0 \text{ on } \partial \Omega$$

where  $\Delta_p$  denotes the p-Laplacian operator defined by  $\Delta_p z := \operatorname{div}(|\nabla z|^{p-2}\nabla z); p > 1, \lambda > 0$  is a parameter and  $\Omega$  is a bounded domain in  $\mathbb{R}^N$ ;  $N \ge 2$  with  $\partial\Omega$  of class  $\mathbb{C}^2$  and connected. (If N = 1, we assume that  $\Omega$  is a bounded open interval.) In particular, we establish existence of three positive solutions for classes of nondecreasing, p-sublinear functions f belonging to  $\mathbb{C}^1([0,\infty))$ . Our proofs are based on sub-super solution techniques. (Received February 24, 2004)