

Yan, Baoqiang; O'Regan, Donal; Agarwal, Ravi P.

Unbounded positive solutions for second order singular boundary value problems with derivative dependence on infinite intervals. (English) [Zbl 1158.34011](#)

Funkc. Ekvacioj, Ser. Int. 51, No. 1, 81-106 (2008).

Summary: The existence of at least one unbounded positive solution and the existence of multiple unbounded positive solutions are established for the singular second-order boundary value problem

$$p(t)^{-1}(p(t)x'(t))' + \Phi(t)f(t, x, px') = 0, 0 < t < +\infty,$$

$$x(0) = 0, \lim_{t \rightarrow +\infty} p(t)x'(t) = 0,$$

using the fixed point index, where f may be singular at $px' = 0$.

MSC:

[34B18](#) Positive solutions to nonlinear boundary value problems for ordinary differential equations

[34B16](#) Singular nonlinear boundary value problems for ordinary differential equations

[34B40](#) Boundary value problems on infinite intervals for ordinary differential equations

Keywords:

boundary value problems; singularity; fixed point index

Full Text: [DOI](#)