

O'Regan, Donal

Existence results for nonlinear integral equations on the half line. (English) [Zbl 0862.45006](#)
Corduneanu, C. (ed.), Qualitative problems for differential equations and control theory. Dedicated to Aristide Halanay on occasion of his 70th birthday. Singapore: World Scientific. 121-131 (1995).

The paper deals with integral equations on the positive half-axis

$$y(t) = h(t) + \int_0^t k_1(t, s) f_1(s, x(s)) ds + \int_0^\infty k_2(t, s) f_2(s, x(s)) ds, \quad (\text{E})$$

under suitable conditions to secure the existence of at least one solution. The method is based on the Schauder-Tikhonov fixed point theorem in the space of continuous maps from $[0, \infty)$ into \mathbb{R}^n , with the topology of uniform convergence on finite intervals. The author also applies a continuation theorem due to *M. Furi* and *M. P. Pera* [*Pac. J. Math.* 160, No. 2, 219-244 (1993; [Zbl 0784.58050](#))]. In particular, existence of bounded solutions is secured for the equation (E).

For the entire collection see [[Zbl 0838.00012](#)].

Reviewer: [C.Corduneanu \(Arlington\)](#)

MSC:

[45G05](#) Singular nonlinear integral equations

Cited in **2** Documents

Keywords:

nonlinear integral equations on the half line; Schauder-Tikhonov fixed point theorem; bounded solutions