Paolo Cubiotti

Non-autonomous vector integral equations with discontinuous right-hand side

Comment.Math.Univ.Carolinae 42,2 (2001) 319-329.

Abstract: We deal with the integral equation $u(t) = f(t, \int_I g(t,z)u(z)dz)$, with $t \in I := [0,1]$, $f : I \times \mathbb{R}^n \to \mathbb{R}^n$ and $g : I \times I \to [0, +\infty[$. We prove an existence theorem for solutions $u \in L^s(I, \mathbb{R}^n)$, $s \in]1, +\infty]$, where f is not assumed to be continuous in the second variable. Our result extends a result recently obtained for the special case where f does not depend explicitly on the first variable $t \in I$.

Keywords: vector integral equations, discontinuity, multifunctions, operator inclusions
AMS Subject Classification: 45P05, 47H15