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Anichini, G. [Anichini, Giuseppe] (I-FRNZ-MCS);
Conti, G. [Conti, Giuseppe] (I-FRNZ-MCS)

On the existence of solutions for quadratic integral equations on unbounded intervals for quasibounded maps. (English summary)

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The authors study the solvability of a nonlinear quadratic integral equation

$$x(t) = f(t) + (Ax)(t) \int_{t_0}^{t} k(t,s)F(s,x(s))ds, \quad t \in J = [0, +\infty),$$

in the Fréchet space $C(J,\mathbb{R})$, where $A\colon C(J,\mathbb{R}) \to C(J,\mathbb{R})$ is a continuous operator such that

$$|A(x)(t)| \leq a|x(t)|, \quad t \in J,$$

and its restrictions to $(C([0,n],\mathbb{R}), \|\cdot\|_n)$ satisfy the Darbo property with a positive constant k_n.

Under suitable conditions, using a fixed point result for condensing acyclic multivalued operators, they prove the existence of a solution in $C(J,\mathbb{R})$. An illustrative example is also given.

Marcel-Adrian Şerban