On the Cauchy problem for nonlinear functional-differential systems

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We present some new efficient conditions sufficient for the solvability of the Cauchy problem

$$x'(t) = F(x)(t), \quad x(a) = c,$$

where $F : C([a,b];\mathbb{R}^n) \to L([a,b];\mathbb{R}^n)$ is continuous operator and $c \in \mathbb{R}^n$. The results obtained generalize those well-known for systems of ordinary differential equations. Some kind of maximimum principle is also discussed in the linear case.