

# ON THE WELL-POSEDNESS OF THE CAUCHY PROBLEM FOR A CLASS OF FUNCTIONAL DIFFERENTIAL EQUATION WITH THE DISTRIBUTED DELAY

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For the differential equation

$$\dot{x}(t) = f(t, x(t), \int_{t-\tau}^t g(x(s)) ds), t \in [t_0, t_1], \tau > 0$$

with the initial condition

$$x(t) = \varphi(t), t \in [t_0 - \tau, t_0), x(t_0) = x_0$$

continuity of a solution is proved with respect to perturbations of the initial data and of the right-hand side  $f$ . Under initial data we imply the collection of the initial moment  $t_0$ , the initial vector  $x_0$ , the initial function  $\varphi(t)$  and parameter  $\tau$ . The initial data is small in a standard norm and the right-hand side is small in the integral sense.