

Equations with almost periodic functions

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ABSTRACT.

Denote by $AP(G)$ (respectively $ap(G)$) the space of all almost periodic functions (respectively almost periodic measures) defined on a Hausdorff locally compact abelian group G and by $M(\mu)$ or $M_x[\mu(x)]$, the mean of the almost periodic measure μ . In this paper we study the solvability of the nonlinear problem

$$\varphi \in AP(G), \quad F(\varphi(x), M_x[\varphi(xy^{-1})f(y)\mu(y)]) = H(x), \quad x \in G.$$

Using the theory of nearness, the theory of Fourier-Bohr series for almost periodic measures, and the Banach fixed point theorem, we establish an existence and uniqueness result for the above equation.

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Received: 27.01.2009; In revised form: 28.05.2009; Accepted: 08.02.2010

2000 *Mathematics Subject Classification.* 43A05, 43A07, 43A40, 43A60, 39B32.

Key words and phrases. Almost periodic measure, almost periodic function, mean, functional equation, nearness.