

FREDHOLM BOUNDARY VALUE PROBLEMS WITH CONCENTRATED DELAY IN THE CASE OF PARAMETRIC RESONANCE

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We investigate the problem of the determination of conditions for the existence of solution [1]

$$z(t) \in \mathbb{C}_n^1 \left\{ [\Delta, T] \setminus \{k\Delta\}_I \right\}, \quad T := (q+1)\Delta, \quad k = 1, 2, \dots, q+1$$

of the linear boundary value problem with concentrated delay [2]

$$z'(t) = A(t)z(t) + B(t)z(t - \Delta) + f(t), \quad t \neq k\Delta, \quad \ell z(\cdot) = \alpha \quad (1)$$

with initial function [1,3]

$$z(t) := \varphi(t) := \sum_{i=1}^p \varphi_i(t)h_i, \quad \varphi_i(t) \in \mathbb{C}_n^1[\Delta, T], \quad \alpha \in \mathbb{R}^m.$$

The matrices

$$A(t), B(t) \in \mathbb{C}_{n \times n}[0, T] := \mathbb{C}[a, b] \otimes \mathbb{R}^{n \times n}, \quad m \neq n$$

and the vector function $f(t) \in \mathbb{C}[0, T]$ are assumed to be continuous on the segment $[a, b]$.

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