Let us consider the system of equations

\[ \frac{dx}{dt} = A(t)x + g(t, x), \quad t \neq t_p, \]

\[ \Delta x|_{t=t_p} = I_i(x), \]

where the functions \( g(t, x) \) and \( I_i(x) \) satisfy inequalities (11). Then, as a particular case of Theorem 4, we can formulate the following theorem.

**THEOREM 5.** Let the matrix \( A(t) \) satisfy the condition

\[ \| A(t) - A(s) \| \leq a(t - s), \quad a > 0, \quad t > s. \]

Also let \( \max \Re \lambda_j(A(t)) < \gamma_0. \) If \( \gamma_0 < 0, \) then for sufficiently small \( a \) and \( \bar{a} \) the zero solution of system of equations (10) is asymptotically stable provided the functions \( g(t, x) \) and \( I_i(x) \) satisfy inequalities (11).

**LITERATURE CITED**


**PARAMETRIC RESULTS FOR CERTAIN INFINITE-DIMENSIONAL MANIFOLDS**

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The theory of \( R^{\tau}, Q^{\tau} \) manifolds is generalized in two directions. Firstly, an axiomatic approach is proposed to describing various classes of manifolds (so-called \( K^{\tau} \)-manifolds) including, along with the indicated classes of \( R^n \) and \( Q^n \)-manifolds, also, e.g., the manifolds modeled on the space \( (f^\tau) = \lim(f^n), \) where \( \tau \) is a cardinal. Secondly, all the arguments were carried out in the category \( \text{Top}_B \), which makes it possible to carry over from spaces to maps practically all basic results of the theory of \( R^{\tau}, Q^{\tau} \)-manifolds. Specifically, there are obtained characterization theorems for trivial and microtrivial \( K^{\text{lin}} \)-fibrations, theorems on open and closed embeddings, stability theorems, etc.

**Basic Notations and Terms.** By \( I \) the closed interval \([0, 1]\) is denoted, \( Q = [-1, 1]^\omega \) is a Hilbert parallelootope, \( \Gamma^\tau \) is the Tikhonov cube of weight \( \tau > \omega; R^{\tau} = \lim(R^n, i_n) \) where the embeddings \( i_n: R^n \to R^{n+1}, n \to 1, \) are defined by the formula \( i_n(x_1, \ldots, x_n) = (x_1, \ldots, x_n, 0), (x_1, \ldots, x_n) \in R^n. \) The spaces \( Q^{\tau} = \lim Q^n \) and \( (f^\tau) = \lim(f^n), \) \( (\tau > \omega \) is a cardinal\) are defined analogously. In all the above spaces, \( 0 \) raised to the respective power is regarded as the distinguished element.

In what follows all the maps are assumed to be continuous and pairs of spaces compact. The closure of a set \( A \) in a space \( X \) is denoted by \( A. \)

By \( \text{Top}_B \) we mean the category of maps to a space \( B \) [1]. The morphisms of this category are called \( B \)-maps or fiber maps. Though the objects of the category \( \text{Top}_B \) are the maps \( p_X: \)
X + B, we shall use the notations (px, X) ∈ Ob TopB or X ∈ Ob TopB, meaning in the latter case
that a map px: X → B is fixed on a space X.

Let S ⊂ Top be some class of spaces. S∞ denotes the full subcategory of the category
TopB consisting of the maps f: E → B, where E ∈ S; S∞ denotes the class of spaces representa-
able in the form of direct limits of countable monotone sequences of spaces belong to class S.

Let H be a class consisting of compacts and admitting these conditions: If A, B ∈ H,
and C is a closed subset of the compactum A, then A × B ∈ H, C ∈ H, A/C ∈ H. A
pointed space (K, *) will be called universal for class H, if K ∈ AR (H), and for any compac-
tum A ∈ H, its point a ∈ A, and some n ∈ N there exists an embedding i: (A, a) → (K^n, *).

Consider the space K^n = lim_{→} [K^n, i_n], where the embeddings i_n: K^n → K^{n+1}, n ≥ 1,
are defined by the formula i_n(x_1, ..., x_n) = (x_1, ..., x_n, 0), (x_1, ..., x_n) ∈ K^n. It is easily seen
that the space K^n is the absolute extensor for class H.

If for class H we take the classes of finite-dimensional compacts, metric compacts,
compacts of weight ω < ω and for a universal object, the pointed compacts (I, 0), (Q, 0),
(I^ω, 0), then we have, respectively, the spaces R^∞, Q^∞, (I^ω)^∞.

As with the spaces R^∞ and Q^∞, one can consider general K^∞-manifolds and fibrations of
K^∞-manifolds. The assertions proved in this paper are fiberwise generalizations of well-
known theorems for the K^∞- and Q^∞-manifolds [2, 3].

In what follows, we shall consider class H and a universal object (K, *) fixed; (locally)
soft maps for class H will be called (locally) soft, if this does not cause misunderstand-
ings.

Definition 1. Let p: E → B be a map and let C ⊂ E be a compactum. An embedding h:
C × K ⊂ E is called a K-envelope of the compactum C if h|C × K = id × K, poh = p ◦ pr_C,
where i: C → C × K (i(c) = (c, *)) is an embedding and pr_C: C × K → C is the natural projection.

In an analogous way a K'∞-envelope of a compactum C ⊂ E is defined. Obviously, if each
compactum in a space E has a K-envelope, then it also has a K'∞-envelope for any n ≥ 1.

The following is a characterization theorem for trivial fibrations with the fiber K∞.

THEOREM 1. Let spaces E and B belong to class H∞, and let p: E → B be a map. The fol-
lowing conditions are equivalent: B × K∞ → B;

1) the map p is B-homomorphic to the trivial fibration
2) p is a soft map for class H, and every compact in the space E has a K-envelope;
3) the map p possesses the property F U (∪ H): for a pair X ⊃ Y, X, Y ∈ Ob H, each B-
embedding f: Y ⊂ E is extendable to a B-embedding f: X → E.

Proof. We shall prove the validity of the implications (1) → (2) → (3) → (1).

(1) ⇒ (2). Since the space K∞ belongs to class AE(H), the trivial fibration p_B: B × K∞ → B is H-
soft. Let C ⊂ B × K∞ be a compactum. There exists n ∈ N such that C ⊂ B_n × K^n, where
B × K^n = lim_{→} B_n × K is a representation of the space B × K∞ in the form of the direct limit of
a monotone sequence of compacts of class H∞. Then h = id × C × id × K: C × K → B_n × K^n × C ⊂ B_n+1 × K^n+1
⊂ B × K∞ is a K-envelope of the compactum C.

(2) ⇒ (3). Let X ⊃ Y, (p_X, X), (p_Y, Y) ∈ H∞ B and f: Y ⊂ E be a B-embedding. Since the
map p is H-soft, there exists a B-map F: X → E extending the embedding f. Let π: X/Y be a quotient map and let i: (X/Y, π(Y)) ⊂ (K^n, *) be an embedding, for some n ∈ N. Let h:
F(X) × K^n ⊂ E be a K^n-envelope of the compact F(X) ⊂ E. Then f = h(F × (i ◦ π)): X ⊂ E is the
required B-embedding extending the embedding f.

(3) ⇒ (1). It follows from what has been proved above that the trivial fibration p_B:
B × K∞ → B possesses property FU(H). Let B × K^n = lim_{→} Y_i, E = lim_{→} X_i be representations of the
spaces B × K∞ and E in the form of the direct limits of monotone sequences of compacts of
class H∞.