

International scientific conference

**“Algebraic and Geometric
Methods of Analysis”**

Book of abstracts



May 28 - June 3, 2019

Odesa, Ukraine

Conference webpage: imath.kiev.ua/~topology/conf/agma2019/

LIST OF TOPICS

- Algebraic methods in geometry
- Differential geometry in the large
- Geometry and topology of differentiable manifolds
- General and algebraic topology
- Dynamical systems and their applications
- Geometric problems in mathematical analysis
- Geometric and topological methods in natural sciences
- History and methodology of teaching in mathematics

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ФІТБ ОНАФТ

Diffeomorphisms preserving Morse-Bott foliations

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Let M be a smooth compact manifold and \mathcal{F} be a codimension one foliation on M having singular leaves of Morse-Bott type. This means that there the set Σ of singular leaves of \mathcal{F} is a disjoint union of compact submanifolds. Let also $\mathcal{D}(\mathcal{F})$ be the group of diffeomorphisms of M leaving each leaf invariant, and $\mathcal{D}(\mathcal{F}, \Sigma)$ be the subgroup of $\mathcal{D}(\mathcal{F})$ consisting of diffeomorphisms fixed on Σ .

Theorem 1. [1] *The “restriction to Σ map”*

$$\rho: \mathcal{D}(\mathcal{F}) \rightarrow \mathcal{D}(\Sigma), \quad \rho(h) = h|_{\Sigma_f},$$

is a locally trivial fibration with fibre $\mathcal{D}(\mathcal{F}, \Sigma)$.

This result can be regarded as a “foliated” variant of the well know results by Cerf and Palais on local triviality of restrictions. In particular, the map ρ has a path-lifting property, and so it contains a “foliated” variant of isotopy extension theorem:

Corollary 2. [1] *Let $H: \Sigma \times [0, 1] \rightarrow \Sigma$ be a C^∞ isotopy with $H_0 = \text{id}_\Sigma$. Then it extends to an isotopy $H: M \times [0, 1] \rightarrow M$ such that $H_t \in \mathcal{D}(\mathcal{F}, \Sigma)$ for all $t \in [0, 1]$.*

REFERENCES

- [1] Olexandra Khohliyk, Sergiy Maksymenko, *Diffeomorphisms preserving Morse-Bott functions*, arXiv:1808.03582

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