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Algebraic and Geometric Methods of Analysis

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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

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ІНТЕРНАЦІОНАЛЬНИЙ ЦЕНТР СПІВРОБІТТЯ

Framed cobordism of systems of submanifolds in the classification of free quotients

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In this talk we will show how framed cobordism of systems of non-separating 2-sided submanifolds in a closed manifold can be used to classify epimorphisms onto free groups up to equivalence and strong-equivalence. Such a classification is known for surface groups and was done by Grigorchuk–Kurchanov–Zieschang by using other methods. We use an extended Pontryagin–Thom construction to associate for any system of submanifolds an induced homomorphism to a free group. We will present geometric operations on submanifolds which realize elementary Nielsen transformations on induced homomorphisms. These results are motivated by the notion of Reeb graph of a function on a manifold, which leads to both free quotient and system of submanifold.

The results are from joint work with Waclaw Marzantowicz.

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I. Kuznietsova, S. Maksymenko <i>On the squares of diffeomorphisms of surfaces</i>	40
K. Matsumoto <i>A recurrent (CHR)-curvature tensor field in a trans-Sasakian manifold</i>	41
N. Mazurenko, M. Zarichnyi <i>Spaces of probability measures and box dimension</i>	43
L. Michalak <i>Framed cobordism of systems of submanifolds in the classification of free quotients</i>	44
F. G. Mukhamadiev <i>The density and the τ-placed of the N_τ^φ-nucleus of a space X</i>	45
I. V. Mykytyuk <i>Ricci-flat Kähler metrics on tangent bundles of rank-one symmetric spaces of compact type</i>	47
A. Y. Narmanov, A. N. Zoyidov <i>On the group of isometries of foliated manifolds</i>	49
I. Petkov, V. Ryazanov <i>On boundary behavior by prime ends of solutions to Beltrami equations</i>	50
L. Plachta <i>Some topological obstructions for strong coloring of uniform hypergraphs</i>	51
S. Maksymenko, E. Polulyakh <i>On quotient spaces and their spaces of continuous maps</i>	53
A. Prishlyak, A. Prus <i>Topology of flows with collective dynamics on surfaces</i>	54
V.M. Prokip <i>On similarity of two families of matrices over a field</i>	56
A. M. Romaniv, N. S. Dzhaliuk <i>Some connections between invariant factors of matrix and its submatrix</i>	57
Y. Sachkov <i>Conjugate time in sub-Riemannian problem on Cartan group</i>	58
A. Sadullaev, F. Mukhamadiev <i>The density and the local density of the space of permutation degree</i>	59
U. Samanta <i>A short note on Hurewicz and \mathcal{L}-Hurewicz properties in topological spaces</i>	60
O. Sazonova <i>About one class of Continual distributions with screw modes</i>	62
A. Serdyuk, T. Stepanyuk <i>Asymptotically best possible Lebesgue inequalities on the classes of generalized Poisson integrals</i>	64
A. Ya. Narmanov, X. F. Sharipov <i>Differential invariants of transformations group</i>	66
S. Som, A. Bera, L. K. Dey <i>Some remarks on the Metrizable of F-metric spaces</i>	67
V. Starodub, R. Skuratovskii <i>Triangle Cubics and Conics</i>	69
T. P. Mokritskaya, A. V. Tushev <i>On some fractal-based estimations of subsidence volume for various types of soils</i>	71
Jun Ueki <i>Non-acyclic SL_2-representations of twist knots and non-trivial L-invariants</i>	73