

International
Scientific Conference



Algebraic and Geometric Methods of Analysis



Devoted to 160 anniversary of
Dvytro Grave
(25.08.1863 - 19.12.1939)
Academician of the Ukrainian
Academy of Sciences, the
first director of the Institute of
Mathematics of NAS of Ukraine

May 29 – June 1, 2023
Odesa, Ukraine

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 and topological methods in natural sciences
- Geometric problems in mathematical analysis

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Degenerations of complex associative algebras of dimension three

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Let $\Lambda_3(\mathbb{C}) (= \mathbb{C}^{27})$ be the space of structure vectors of 3-dimensional algebras over $\mathbb{C}$ considered as a G -module via the action of $G = \text{GL}(3, \mathbb{C})$ on $\Lambda_3(\mathbb{C})$ ‘by change of basis’. We determine the complete degeneration picture inside the algebraic subset $\mathcal{A}_3^s$ of $\Lambda_3(\mathbb{C})$ consisting of associative algebra structures via the corresponding information on the algebraic subsets $\mathcal{L}_3$ and $\mathcal{J}_3$ of $\Lambda_3(\mathbb{C})$ of Lie and Jordan algebra structures respectively. This is achieved with the help of certain G -module endomorphisms ϕ_1, ϕ_2 of $\Lambda_3(\mathbb{C})$ which map $\mathcal{A}_3^s$ onto algebraic subsets of $\mathcal{L}_3$ and $\mathcal{J}_3$ respectively.

This is a joint work with Nataliya M. Ivanova

REFERENCES

- [1] N.M Ivanova and C.A. Pallikaros. Degenerations of complex associative algebras of dimension three via Lie and Jordan algebras. arXiv:2212.10635.

Several forms of the geometric Lusternik-Schnirel’mann category

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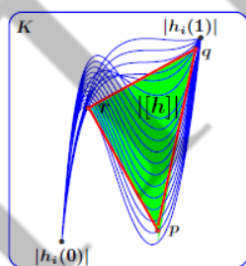


Fig. 1.1 → Fig. 1.2

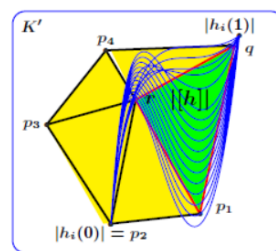


FIGURE 0.1. Fig. 1.1 from Theorem 1.6 & Fig. 1.2 from Corollary 1.8.

This paper introduces results for several forms of the geometric Lusternik-Schirel’mann categories (LS gcat).

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