



International
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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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ФІТБ ОНАФТ

Motivic hypercohomology solutions in field theory II

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2010 AMS Classification: 13D03, 13D09, 18G40, 19D23, 19D55, 24D23.

Keywords: Derived Categories, Derived Tensor Products, Étale Sheaves, Geometrical Motives Categories, Hypercohomology, Quantum Field Equations, Tensor Derived Category.

The determination of a hypercohomology as cohomology group where are defined the solutions of the field equations obeys to the triangulated derived categories that permit an scheme (triangle) commutative whose integrals are solutions of the field equations. The determination of this hypercohomology arises of the fact of that derived motivic category $DM_{\text{gm}}(k)$, which is of the motivic objects whose image is under $\text{Spec}(k)$, that is to say, an equivalence of the underlying triangulated tensor categories, compatible with respective functors on Sm_k^{Op} . The geometrical motives will be risked with the moduli stack to holomorphic bundles. likewise, is analysed the special case where complexes $C = \mathbb{Q}(q)$, are obtained when cohomology groups of the isomorphism $H_{\text{ét}}^p(X, F_{\text{ét}}) \cong H_{\text{Nis}}^p(X, F_{\text{Nis}})$, can be vanished for $p > \dim(Y)$. We observe also the Beilinson-Soulé vanishing conjectures where we have the vanishing $H^p(F, \mathbb{Q}(q)) = 0$, if $p \leq 0$, and $q > 0$, which confirms the before established. Then survives a hypercohomology $\mathbb{H}^q(X, \mathbb{Q})$. Then their objects are in $\text{Spec}(\text{Sm}_k)$. Likewise for the complex Riemannian manifold the integrals of this hypercohomology are those whose functors image will be in $\text{Spec}_H \text{SymT}(\text{OP}_{L_G}(D))$, which is the variety of opers on the formal disk D , or neighborhood of all point in a surface Σ .

REFERENCES

- [1] Francisco Bulnes, Characteristic Cycles Integration on D - Modules to obtaining of Field Equations solutions on L-Holomorphic Bundles, *International Journal of Advances in Mathematics*, Volume 2019, Number 4, pp. 1–17, 2019.
- [2] Francisco Bulnes, & Ivan Verkelov. (2020). Scheme of Derived Moduli Problem to the "quantum" version of an algebra symT. *IJRDO – Journal of Mathematics* (ISSN: 2455-9210), 6(3), 01–12. Retrieved from <https://www.ijrdo.org/index.php/m/article/view/3534>
- [3] F. Bulnes. (2020) "Geometrical Motives Categories to Determine Co-Cycles as Solutions in Field Theory," *Theoretical Mathematics and Applications*, Vol. 10 (2), pp. 15–31.
- [4] F. Bulnes. (2017) "Extended ∂ – Cohomology and Integral Transforms in Derived Geometry to QFT-equations Solutions using Langlands Correspondences," *Theoretical Mathematics and Applications*, Vol. 7 (2), pp. 51–62.

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