CURRICULUM VITAE

GRIGORY PAPAYANOV

Born: April 18, 1991, Kolomna, USSR

Citizenship: Russia

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Education:

- 2010–2014 NRU HSE, Math dept., B.S., diploma thesis "Cohomological properties of Hermitian symplectic manifolds", research advisor Prof. Misha Verbitsky.
- 2014–2016 NRU HSE, Math dept., M.S., diploma thesis "Deformation theory of Nearly-Kähler manifolds", research advisor Prof. Misha Verbitsky.
- 2016–2023 Northwestern University, PhD student, PhD thesis topic "Two applications of homotopy transfer theorem for Infinity-algebras", research advisor Prof. Boris Tsygan. Defended on May 1st, 2023.

Positions and visits:

- 2014–2016 NRU HSE, Laboratory of algebraic geometry and its applications, research intern.
- 2023 Weizmann Institute of Science, visiting student.
- 2023–2024 Haifa University, postdoc.

Research papers:

- Cohomological properties of Hermitian symplectic manifolds, preprint, arXiv:1506.07421 [math.DG]

- Goto's deformation theory of geometric structures, a Lie-theoretical description, arxiv:1607.07509 [math.DG], submitted
- A remark on cohomology of nilpotent Lie algebras, arXiv:2303.09439 [math.RT], submitted
- The period map for the holomorphic Fedosov quantizations, PhD thesis
- Superconnections and Grauert direct image theorem, Math. Notes, **115**:5 (2024), 842–844
- Homotopy transfer for sheaves of infinity-algebras, in preparation

Research talks:

Geometric structures on manifolds, HSE, 2013-...:

- Some remarks on the cohomology of nilpotent Lie algebras.
- Lie-theoretical approach to the deformation theory of G_2-manifolds.
- Dolbeault cohomology for almost complex manifolds.
- A proof of Grauert direct image theorem via elliptic theory.
- On reconstruction problem for nilpotent Lie algebras.

Arnold's day, HSE, 2014:

- Hodge theory for Hermitian symplectic manifolds.

Tokyo-Berkeley Summer School "Geometry and Mathematical Physics", 2015:

- Deformation theory for G_2 and Nearly Kähler manifolds.

V school-conference on algebraic geometry and complex analysis, Koryazhma, 2015:

- Hodge theory for Hermitian symplectic threefolds.

Siberian summer school Current developments in Geometry, 2018-2019:

- A proof of Grauert direct image theorem via elliptic theory
- Reconstruction problem for Nilpotent Lie algebras.

Deformation theory seminar, Northwester, 2019:

- Maurer-Cartan formal stack.
- Bar-Cobar duality.

Algebra seminar, University of Georgia, 2019:

- A proof of smooth Grauert direct image theorem via elliptic theory.
- Deformation theory of closed forms on a manifold.

Complex Geometry in Byurakan, 2022:

- Fedosov quantization and the period map.

Algebra and Geometry, Suzdal, 2022:

- Chern-Weil characteristic classes as Chern-Simons characteristic classes (poster).

Cable car seminar, Haifa, 2023:

- On cohomology of nilpotent Lie algebras and conilpotent PBW theorem.

AGNT seminar, Ben Gurion University, 2024:

- Holomorphic Fedosov quantizations and the period map

Teaching experience:

- Teaching assistance on various level courses in IUM, HSE and Northwestern; from basic analysis and linear algebra to advanced ones like Fourier theory, Linear programming and Complex algebraic geometry.
- Developed and read a course on deformation theory and Koszul duality in IUM, 2022,
  `https://ium.mccme.ru/s22/s22-Papayanov.html`.
- Read an advanced topology course in IUM, 2022,
  `https://ium.mccme.ru/f22/f22-papayanov.html`.

References: Boris Tsygan (b-tsygan[]northwestern.edu), Dmitry Kaledin (kaledin[]mi-ras.ru), Misha Verbitsky (verbit2000[]gmail.com), Santiago Cañez (teaching recommendation) (scanez[]northwestern.edu)

Research interests: Homological algebra, Hodge theory, deformation theory.

Languages: Russian, English, Spanish (intermediate).