CV

Ievgen Makedonskyi

Name: Makedonskyi Ievgen.
Date and place of birth: November 9, 1989, Melitopol, Ukraine.
Education:

- B.Sc. Kiev T. Shevchenko university, Mechanics and Mathematics faculty, 2007-2011;
- M.Sc, Kiev T. Shevchenko university, Mechanics and Mathematics faculty, 2011-2013; Title of Master thesis: "Finite dimensional Lie algebras of derivations";
- Ph.D. Student, HSE, Department of Mathematics, 2013-2016, **Adviser**: Evgeny Feigin; Title of PhD. thesis: "Some classes of cyclic modules over Lie algebras".

Employment:

- Friedrich-Schiller-Universität, Jena, Postdoc, May-December, 2022;
- Max Planck Institute for Mathematics, Bonn, Postdoc, March-April, 2022;
- Center of Advanced Studies, Skolkovo Institute of Science and Technology, from November, 2019-2022.
- Kyoto University, Japan, Postdoc, April 2018-October 2019.
- Max Planck Institute for Mathematics, Bonn, Postdoc, January-December, 2017;
- HSE, Laboratory of Algebraic Geometry, 2016-2018.

Current position: Friedrich-Schiller-University, Jena, 2022.
Research interests: Lie algebras, polynomial derivations, affine Kac-Moody Lie algebras, Weyl and Demazure modules, nonsymmetric Macdonald polynomials, current algebras, arc varieties.
Organized seminar: Lie Algebras and Applications, from 2019 (with E. Feigin and I. Makhlin).
Conferences:

- Geometry and representation theory at the interface of Lie algebras and quivers, Bochum, 2018.
- Geometry and Representation Theory of Algebraic Groups, Bad Honef, 2018.
- Lie Algebras, Algebraic Groups and Invariants Theory, Moscow-Togliatty-Samara, 2011, 2012, 2014, 2015, 2018, 2020, 2021;
- PBW filtrations of modules for Lie algebras and their appearance/applications in Representation Theory, Glasgow, 2014;

- Integrable Systems and Quantum symmetries (ISQS), Prague, 2013;
- Integrability in algebra, geometry and physics: new trends, Ascona, Switzerland, 2015;
- Mini-Workshop: PBW Structures in Representation Theory, Oberwolfach, Germany, 2016.
- Conference on representation theory and Algebraic Geometry In honor of Joseph Bernstein, Weizmann, Israel 2017.
- Workshop on Quiver Grassmanians and their Applications, Wuppertal, Germany, 2017.

Summer Schools:

- Algebra and Geometry, Yaroslavl, 2013, 2014, 2015, 2016, 2019;
- Algebraic Groups and representations, Lyon 2014;
- Perspectives in Lie theory, Pisa, 2015.
- Infinite Analysis 18 Spring School, Nagoya, 2018.
- Mathematical Physics School, online, 2019, 2020.

Awards:

- International Mathematics Competition, Bulgaria, 2011 (first prize);
- Voitech Jarnik IMC, Czech Republic, Ostrava, 2012 (first prize).

PUBLICATION LIST

[RM] A. Regeta, Ie. Makedonskyi *Bracket width of the Lie algebra of vector fields on a smooth affine curve*, arXiv:2210.14787.

[DFMM] I. Dumanski, E. Feigin, Ie. Makedonskyi, I. Makhlin *On reduced arc spaces of toric varieties*, arXiv:2208.10432.

[M1] Ie. Makedonskyi *Semi-infinite Plücker relations and arcs over toric degeneration*, accepted to Mathematical Research Letters.

[FKhM] E. Feigin, A. Khoroshkin, Ie. Makedonskyi *Duality theorems for current groups*, accepted to Israel Journal of Mathematics.

[FM1] E. Feigin, I. Makedonskyi, *Vertex Algebras and Coordinate Rings of Semi-infinite Flags*, Comm. Math. Phys., 2019, p. 1-24.

[FM2] E. Feigin, I. Makedonskyi, *Semi-infinite Plücker relations and Weyl modules*, IMRN, rny121.

[FMK] E. Feigin, S. Kato, I. Makedonskyi, *Representation theoretic realization of nonsymmetric Macdonald polynomials at infinity*, accepted to Journal für die reine und angewandte Mathematik.

[FMO] E. Feigin, I. Makedonskyi, D. Orr, *Generalized Weyl modules and nonsymmetric q-Whittaker functions*, Advances math, v. 330, p. 997-1033.

[FM3] E. Feigin, I. Makedonskyi, *Generalized Weyl modules for twisted current algebras*, Theoretical and Mathematical Physics 192 (2), pp. 1184–1204.

[FM4] E. Feigin, I. Makedonskyi, *Generalized Weyl modules, alcove paths and Macdonald polynomials*, Selecta Mathematica, 23(4), pp. 2863–2897.

[FM5] E. Feigin, I. Makedonskyi, *Weyl modules for $\mathfrak{osp}(1,2)$ and nonsymmetric Macdonald polynomials*, Mathematical Research Letters, vol. 24, no. 3 (2017), pp. 741–766.

[M2] I. Makedonskyi, *On Noncommutative Bases of Free Modules of Derivations over Polynomial Rings*, Communications in Algebra, 2016, vol. 1. no. 44. pp. 11–25.

[FM6] E. Feigin, I. Makedonskyi, *Nonsymmetric Macdonald polynomials and PBW filtration: Towards the proof of the Cherednik--Orr conjecture*, Journal of Combinatorial Theory, series A, 2015, vol. 135, pp. 60–84.

[M3] Ie. Makedonskyi, *On Wild and Tame finite dimensional Lie algebras*, Functional Analisys and it's applications, 2013, vol. 47, issue 4, pp. 271–283.

[MP1] Ie. O. Makedonskyi, A. P. Petravchuk, *On nilpotent and solvable Lie algebras of derivations*, Journal of Algebra, 2014, vol. 401, pp. 245–257.

[MP2] Ie. O. Makedonskyi, A. P. Petravchuk, *On finite dimensional Lie algebras of planar vector fields with rational coefficients*, Methods Funct. Anal. Topology, 2013, vol. 19, no. 4, pp. 376–388.

[APM] I. V. Arzhantsev, Ie. O. Makedonskii, A. P. Petravchuk, *Finite-Dimansional subalgebras of polynomial Lie algebras of rank one*, Ukrainian Math. Journal, 2011, vol. 63, no. 5, pp. 827-–832.