

Ilya Dumanski

Contact details

Email ilyadumnsk@gmail.com; dumanski@mit.edu
Postal address Department of Mathematics, Massachusetts Institute of Technology,
182 Memorial Dr, Cambridge, MA 02142

Education

- 2021 — 2026** PhD student at the Massachusetts Institute of Technology.
- 2019 — 2021** Master degree at the Department of Mathematics, Higher School of Economics (HSE) and Center for Advanced Studies, Skoltech, Moscow.
- 2015 — 2019** Bachelor degree at the Department of Mathematics, Higher School of Economics (HSE), Moscow.

Scientific interests

Representation theory, algebraic geometry, algebraic combinatorics.

List of publications

1. Dumanski, Ilya. "A geometric approach to Feigin-Loktev fusion product and cluster relations in coherent Satake category." arXiv preprint arXiv:2308.05268 (2023).
2. I. Dumanski, E. Feigin, I. Makedonskyi, I. Makhlin. "On reduced arc spaces of toric varieties". 2022, preprint, arXiv:2208.10432
3. I. Dumanski, E. Feigin, M. Finkelberg. "Beilinson–Drinfeld Schubert varieties and global Demazure modules". 2021, Forum of Mathematics, Sigma, 9, E42. doi:10.1017/fms.2021.36
4. I. Dumanski, E. Feigin. "Reduced arc schemes for Veronese embeddings and global Demazure modules". Communications in Contemporary Mathematics, 2022, <https://doi.org/10.1142/S0219199722500341>

Research talks

- Conference "Integer Partitions, Arc Spaces and Vertex Operators" at Joint Mathematics Meeting 2024, Jan 3 - 6, 2024, San Francisco: "Reduced structure of arc spaces".
- Conference "Algebraic and combinatorial methods in representation theory", Nov 13 – 24, 2023, Bangalore: "A geometric approach to Feigin–Loktev fusion product".
- Purdue University, Mathematical Physics Seminar, March 22, 2023: "Geometric approach to Feigin–Loktev fusion product".
- MIT, Infinite Dimensional Algebra seminar, Dec 9, 2022: "A geometric approach to the Feigin-Loktev fusion product".
- UC Berkeley, Representation theory and tensor categories seminar, Nov 7, 2022: "A geometric approach to Feigin-Loktev fusion product".
- Azat Miftakhov Days, online, July 5, 2022: "Schubert varieties in the Beilinson-Drinfeld Grassmannian".

- HSE, Seminar of the Laboratory of Algebraic Geometry and Its Applications, May 14, 2021: “Schubert varieties in Beilinson-Drinfeld Grassmannian”.
- Moscow State University, Lie Groups and Invariant Theory seminar, Apr 28, 2021: “Schubert varieties in Beilinson-Drinfeld Grassmannian”.
- HSE, Lie Algebras and Applications seminar, Nov 17, 2020: “Global Demazure modules and Beilinson-Drinfeld Schubert varieties”.
- Aachen-Bochum-Cologne-Darstellungstheorie seminar, online, July 29, 2020: “Global Demazure modules”.
- Moscow State University, E. Vinberg’s seminar Lie Groups and Invariant Theory, Feb 19, 2020: “Global Demazure modules”.
- HSE, Lie Algebras and Applications seminar, Jan 28, 2020: “Global Demazure modules”.
- Oberwolfach, Workshop “Degeneration Techniques in Representation Theory”, 6 – 12 Oct 2019: “Global Demazure modules and semi-infinite Veronese curves”.
- Arnold Day 2019, Moscow, June 20, 2019: “Semi-infinite flag variety”.

Honors, awards and fellowships

- MIT Presidential Fellowship, 2021-2022.
- Simons Fellowship in Mathematics 2020.
- Möbius Contest 2018, the first prize in nomination “Undergraduates” for the work “Homogeneous coordinate ring for Veronese curve of degree 2”.
- Arnold Scholarship, Sept 2018 – June 2019. A scholarship annually awarded to a single HSE senior undergraduate for research achievements.
- “Alfa-Chance” scholarship, Sept 2015 – Aug 2017. Twenty freshmen of HSE are annually awarded.

Scientific activities

Journals

Referee for the journal “Transformation groups”.

Events

- Workshop on Algebra and Representation Theory, Held on Oregonian Grounds “Categorified Coulomb Branches”, Eugene, July 10–14, 2023.
- Conferences Gauge Theory, Moduli Spaces and Representation Theory, Kyoto and Kashiwa, Feb 20 – March 3, 2023.
- Conference “Vertex Algebras and Representation Theory”, Luminy, June 6 – 10, 2022.
- Conference “Open Problems in Algebraic Combinatorics”, Minneapolis, May 16 – 20, 2022.
- Summer school “Cluster Algebras and Moduli Spaces”, Sochi, Aug 1 – 7, 2021.
- Summer school “Algebra and Geometry”, Yaroslavl, July 25 – 31, 2021; July 24 – 31, 2019; July 23 – 31, 2018.
- Conference “Lie algebras, algebraic groups and invariants theory”, Moscow, Jan 27 – Feb 1, 2020; Samara, Aug 18 – 26, 2018.
- Winter school on Integrable systems and Representation Theory, Bologna, Jan 13 – 17, 2020.

- Mini-Workshop “Degeneration Techniques in Representation Theory”, Oberwolfach, Oct 6 – 12, 2019.
- Conference “Integrability, Combinatorics And Representations”, Giens, Sept 2 – 6, 2019.
- Summer School “Visions of Algebraic Groups”, Saint-Petersburg, Aug 26 – 30, 2019.
- International Summer School on Mathematical Physics, Moscow, July 1 – 12, 2019.
- International PhD Lab “Representation Theory of Lie groups and applications in Mathematical Physics”, Reims, June 24 – 30, 2019.
- Workshop “Geometric and computational aspects of representation theory of Lie algebras and quivers”, Aachen, Feb 12 – 14, 2019.
- “Heidelberg Laureate Forum”, Heidelberg, Sept 23 – 28, 2018.
- Conference “Function theory and dynamics of point processes”, Saint-Petersburg, June 1 – 3, 2017.
- Conference “Random Matrices and Determinantal Process”, Luminy, Feb 27 – March 3, 2017.
- Summer school “Contemporary mathematics”, Dubna, July 19 – 30, 2016; July 18 – 29, 2015.
- “Modern Mathematics International Summer School for Students”, Bremen, July 4 – 14, 2015; Lyon, Aug 20 – 29, 2014.
- Conference “Mal'tsev Meeting – 2015” in section “Group theory” with talk “On periodization of plane tilings” (with S. Avgustinovich), Novosibirsk, May 3 – 7, 2015.

Non-fiction publications

- I. Dumanski, V. Kiritchenko, “Representations and degenerations”, Snapshots of modern mathematics from Oberwolfach; 2022-07, DOI 10.14760/SNAP-2022-007-EN
- “Poling day”, Kvantik journal, Dec 2012 (with V. Katyakova, in Russian). It is about Condorcet’s paradox and Arrow’s impossibility theorem.

Personal details

Date and place of birth	June 24, 1997; Novosibirsk, Russia.
Language skills	Russian (native); English (fluent); French (basic knowledge); German (basic knowledge).
Marital status	Married.