Alexander Yom Din

Curriculum Vitae *(last updated: Feb 11, 2024)*

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Positions

Mar 2020–... **Assistant Professor (tenure track)**, Hebrew University of Jerusalem.

Sep 2019–Feb 2020 **Member**, Institute for Advanced Study, Princeton.

2016–2019 **Olga Taussky & John Todd Instructor in Mathematics**, California Institute of Technology.

Education

2011–2016 **Ph.D. in Mathematics**, *Tel Aviv University*.
Advisor: Joseph Bernstein
Thesis title: On properties of the Casselman-Jacquet functor

2008–2011 **M.Sc. in Mathematics**, *Tel Aviv University*.
Advisor: Joseph Bernstein
Thesis title: Barr-Beck Theorem and Faithfully Flat Descent

2002–2005 **B.Sc. in Mathematics**, *Haifa University*.

Grants

Oct 2020 - Sep 2024 **ISF grant**.

Research publications

(CS, preprint) Alexander Yom Din, Taelin Karidi, Leshem Choshen, Mor Geva. 2023. **Jump to Conclusions: Short-Cutting Transformers With Linear Transformations.** (arXiv:2303.09435)

(math, preprint) **On irreps of a Hecke algebra of a non-reductive group**, with D. Kazhdan. (arXiv:2209.05536)

(math) **On tempered representations**, with D. Kazhdan, J. Reine Angew. Math. **788** (2022), 239-280.

(math, preprint) **A Paley-Wiener theorem for spherical p-adic spaces and Bernstein morphisms**. (arXiv:2002.10063)

(math) **Second adjointess for tempered admissible representations of a real group**, Israel J. Math. **244** (2021), 215-244.

(math) **On parabolic restriction of perverse sheaves**, with R. Bezrukavnikov, Publ. Res. Inst. Math. Sci. **57** (2021), no. 3, 1089-1107.

(math) **On the Deligne-Lusztig involution for character sheaves**, Sel. Math. New Ser. **25:49** (2019).

(math) **An analog of the Deligne-Lusztig duality for $(\mathfrak{g}, K)$-modules**, with D. Gaitsgory, Adv. Math. **333** (2018), 212-265.

(math) **On the Casselman-Jacquet functor**, with T.-H. Chen and D. Gaitsgory, Proc. Sympos. Pure Math. **101** (2019), 73-112.

(math) **A formula for the geometric Jacquet functor and its character sheaf analog**, with T.-H. Chen, GAFA **27(4)** (2017), 772-797.

(math) **On properties of the Casselman-Jacquet functor**, Ph.D. thesis, Tel Aviv University. (arXiv:1609.02523)

(math) **Reciprocity laws and K-theory**, with E. Musicantov, Annals of K-theory **2-1** (2017), 27-46.

Students and postdocs

Postdoc Roman Gonin (Oct 2021 - Sep 2023)

Teaching

Hebrew University of Jerusalem

Instructor Linear algebra 1

Instructor Algebraic structures 1

Instructor Representations of compact Lie groups and Lie algebras

Instructor Category theory

Instructor Fundamental concepts in representation theory

California Institute of Technology

Instructor Ma 7 (number theory for beginners)

Instructor Ma 120c (semisimple algebras, Brauer group, representations of finite groups, etc.)

Instructor Ma 191b (topics course: representation theory of real groups)

Instructor Ma 145a (representation theory of finite groups)

Instructor Ma 145b (representation theory of compact groups)

Instructor Ma 5a (group theory)

Tel Aviv University

TA* • Algebraic geometry • Linear algebra 1A (vector spaces and linear maps) • Linear algebra 2A (bilinear forms, Jordan form, etc.) • Algebra B1 (group theory) • Complex analysis • ODE for engineers • Methods of calculus for engineers • Linear algebra for engineers

Haifa University

TA* • Probability theory • Galois theory

(* All "TA" items above include preparing and delivering weekly frontal lectures, preparing homework sheets and oftentimes their solutions, conducting office hours, grading exams)

Research Talks

Aug 2023 **University of Copenhagen**, *Department of Computer Science*, CoAStaL NLP seminar.

Aug 2023 **University of Copenhagen**, *Representation Theory Seminar*.

May 2023 **Lisbon University**, *Algebra Seminar*.

May 2023 **Technion**, *Cable Car Algebra Seminar*.

May 2022 **Weizmann institute**, *Seminar on Representation Theory and Algebraic Geometry (by Zoom)*.

Mar 2022 **HSE/Skoltech**, *Seminar on Lie algebras and applications (by Zoom)*.

Feb 2022 **Stockholm Mathematics Centre**, *Wednesday Zoom Seminar*.

May 2020 **Conference in honor of Joseph Bernstein**, *Weizmann institute (by Zoom)*.

Dec 2019 **Johns Hopkins University**, *Number Theory Seminar*.

Oct 2019 **Institute for Advanced Study**, *Short talks by postdoctoral members*.

Jan 2018 **University of Copenhagen**, *Algebra and Topology Seminar*.

Jan 2018 **Northeastern University**.

Dec 2018 **The Hebrew University of Jerusalem**, *Colloquium*.

Dec 2018 **Weizmann Institute of Science**, *Seminar on Representation Theory and Algebraic Geometry*.

Nov 2018 **Univeristy of Wisconsin-Madison**, *Colloquium*.

Apr 2018 **Univeristy of Wisconsin-Madison**, *Algebra and Algebraic Geometry Seminar*.

Apr 2018 **Northwestern University**, *Algebra Seminar*.

Nov 2017 **California Institute of Technology**, *Algebra and Geometry Seminar*.

Feb 2017 **Yale University**, *Algebra and Number Theory Seminar*.

Feb 2016 **California Institute of Technology**, *Number Theory Seminar*.

Nov 2016 **California Institute of Technology**, *Number Theory Seminar*.

Aug 2015 **Max Planck Institute for Mathematics**, *Representation Theory Afternoon*.

Aug 2015 **Summer School "Reductive Groups"**, *Schloß Schney*.

Jun 2015 **Weizmann Institute of Science**, *Algebraic Geometry and Representation Theory Seminar*.

May 2015 **The Hebrew University of Jerusalem**, *Number Theory/Algebraic Geomtery Seminar*.

Professional services

Oct 2023 - ... Department counselor for undergraduates

Oct 2021 - ... Coorganizer of the colloquium at the Hebrew University of Jerusalem

Fall 2017 - Spring 2019 Coorganizer of the "Algebra and Geometry Seminar" at the California Institute of Technology

Referee for the journals: • *Duke Mathematical Journal* • *Selecta Mathematica, New Series* • *International Mathematics Research Notices* • *Advances in Mathematics* • *Representation Theory*

Languages

Hebrew *(fluent)*

Russian *(fluent)*

English *(fluent)*

Arabic (Levantine and MSA) *(intermediate)*

Python (`torch`, `transformers`, `sklearn`, etc.)

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