

CONTACT INFORMATION	<i>Mailing address:</i> 4021 Winfield Ave Fort Worth, TX 76109 USA <i>Work address:</i> Department of Mathematics Southern Methodist University Dallas, TX 75275–0156 <i>Mobile:</i> +1-817-900-2187 <i>Email:</i> isoroko@smu.edu ignat.soroko@gmail.com <i>WWW:</i> ignatsoroko.com
RESEARCH INTERESTS	Group theory from the geometric, topological and combinatorial points of view, with emphasis on Artin groups, Coxeter groups, mapping class groups, quasi-isometry invariants, Dehn functions of groups, and criteria for linearity.
ACADEMIC POSITIONS	Lecturer Southern Methodist University, August 2025 – present Visiting Assistant Professor University of North Texas, August 2022 – August 2025 Dean’s Post-Doctoral Scholar Florida State University, August 2021 – August 2022 Postdoctoral Researcher Louisiana State University, August 2018 – May 2021
VISITING POSITIONS	Visiting Researcher Institut de Mathématiques de Bourgogne, Université Bourgogne Europe, May–June, 2025. Visiting Researcher “Combinatorial Nonpositive Curvature”, BIRS, Banff, Canada, September 1–6, 2024. Visiting Researcher “Hot Topics: Artin Groups and Arrangements – Topology, Geometry, and Combinatorics”, SLMath, Berkeley, California, March 10–16, 2024. Visiting Researcher “Geometry and topology of Artin groups”, American Institute of Mathematics (AIM), Caltech, Pasadena, California, September 10–16, 2023. Long Term Visitor “Thematic Program on Toric Topology and Polyhedral Products”, the Fields Institute, Toronto, Ontario, Canada, January–July 2020. (accepted, canceled due to Covid-19) Visiting Researcher Sydney Mathematical Research Institute, School of Mathematics and Statistics, The University of Sydney, May–June 2019. Associate Member “Geometric Group Theory” Program, Mathematical Sciences Research Institute (MSRI), Berkeley, August–October 2016.
EDUCATION	University of Oklahoma, Norman, OK Ph.D., May 2018 • Thesis: <i>Dehn functions of subgroups of right-angled Artin groups.</i> • Adviser: Dr. Noel Brady • Area of Study: Geometric group theory Michigan State University, East Lansing, MI

Master of Science, May 2013

- Area of Study: Mathematics

GRANTS

- NSF Standard Topology Grant, 2025–2028 (not funded).
- NSF Standard Topology Grant, \$97095, 2023–2026 (not funded).
- AMS–Simons Travel Grant, \$4000, AMS, Providence, RI, 2019–2023.
- Early-career AMS–NSF–Simons–ICM Travel Grant, \$1500, AMS, Providence, RI, 2022.
- Kovalevskaya Grant, \$2000, ICM Organizing Committee, St. Petersburg, Russia, 2022.
- GEAR Graduate Internship, \$7500, MSRI, Berkeley, CA, Fall 2016.

PAPERS AND PREPRINTS

In preparation:

19. Lower bounds for divergence of Coxeter groups. (Joint with P. Dani, M. Mikkelsen, and A. Thomas)
18. Endomorphisms of Artin groups of type $\tilde{C}_n$. (Joint with L. Paris)
17. Endomorphisms of the Artin group of type D_5 . (Joint with L. Paris)

Published/Accepted/Submitted:

16. Automorphisms of the Artin group of type D_5 . (Joint with L. Paris, submitted) [arXiv:2606.26082](#).
15. Property R_∞ for generalized Higman groups (Joint with N. Vaskou) [arXiv:2604.27526](#). To appear in *University of Tennessee Mathematics Journal*.
14. Humanity’s Last Exam (Joint with L. Phan et al.) Center for AI Safety., Scale AI. & HLE Contributors Consortium. A benchmark of expert-level academic questions to assess AI capabilities. *Nature* 649, 1139–1146 (2026).
13. Explicit polynomial bounds on Dehn functions of subgroups of hyperbolic groups. (Joint with R. Kropholler and C. Llosa Isenrich) [arXiv:2501.01688](#). To appear in *Algebraic & Geometric Topology*.
12. Property R_∞ for new classes of Artin groups. (Joint with N. Vaskou, submitted) [arXiv:2409.18123](#). To appear in *Journal of Group Theory*.
11. Endomorphisms of Artin groups of type B_n . (Joint with L. Paris), *Journal of Algebra* 678 (2025), 831–861.
10. Endomorphisms of Artin groups of type $\tilde{A}_n$. (Joint with L. Paris) *Journal of Algebra* 678 (2025), 809–830.
9. Divergence, thickness and hypergraph index for general Coxeter groups. (Joint with P. Dani, Y. Naqvi and A. Thomas) *Israel Journal of Mathematics* (2026).
8. Property R_∞ for some spherical and affine Artin–Tits groups. (Joint with M. Calvez) *Journal of Group Theory* 25, 6 (2022), 1045–1054.
7. Homological Dehn functions of groups of type FP_2 . (Joint with N. Brady and R. Kropholler, submitted) [arXiv:2012.00730](#).
6. Artin groups F_4 and H_4 are not commensurable with that of type D_4 . *Topology and its Applications* 300 (2021), 107770.

5. Linearity of some low-complexity mapping class groups. *Forum Mathematicum*, 32, 2 (2020), 279–286.
4. Realizable ranks of joins and intersections of subgroups in free groups. *International Journal of Algebra and Computation* 30, 3 (2020), 625–666.
3. Uncountably many quasi-isometry classes of groups of type FP. (Joint with R. Kropholler and I. Leary) *American Journal of Mathematics*, 142, 6 (2020), 1931–1944.
2. Genus bounds in right-angled Artin groups. (Joint with M. Forester and J. Tao). *Publicacions Matemàtiques* 64, 1 (2020), 233–253.
1. Dehn functions of subgroups of right-angled Artin groups. (Joint with N. Brady) *Geometriae Dedicata* 200 (2019), 197–239.

Other texts:

- Linearity criteria for poly-free groups. Available at www.math.unt.edu/~soroko
- On a question of Peter Sarnak. Available at www.math.unt.edu/~soroko

Other materials:

- Kourovka notebook, problem contributor. <https://arxiv.org/abs/1401.0300v38>
- Artin groups via mapping class groups. Audiovisual resource. https://youtu.be/nbEPEsscH_g, GAGA seminar, TCU, September 2, 2025.
- Humanity’s Last Exam (dataset contributor). <https://lastexam.ai/>, 2025.
- A GAP code for computing hypergraph index. <https://github.com/ignatsoroko/HypergraphIndex>, 2022
- Divergence in Coxeter groups. TCU, 2022, Audiovisual resource. <https://www.youtube.com/watch?v=5Yr6GCEftaw>
- Commensurability of spherical Artin groups. University of Sydney, 2021, Audiovisual resource. <https://www.youtube.com/watch?v=Cj0hOqydN-Y>
- Groups of type FP: their quasi-isometry classes and homological Dehn functions. TCU, 2021. Audiovisual resource. <https://www.youtube.com/watch?v=Xoj8A5QdBUo>
- Intersections and joins of subgroups in free groups. CIRM, 2020. Audiovisual resource. <https://www.youtube.com/watch?v=5iuzvNvGyUI>

**AWARDS AND
HONORS**

- UNT College of Science Postdoc award for attending “Artin Groups, Braids, and Mapping Class Groups: Celebrating the Work of Luis Paris” conference, Cáceres, Spain, June 16–20, 2025.
- Travel award for attending “Geometry and Analysis of Groups and Manifolds” workshop, Pisa, Italy, June 26–30, 2023.
- Travel award for attending “Geometry, Arithmetic, and Groups” conference, University of Texas at Austin, Austin, Texas, June 20–24, 2022.
- Travel award for attending the 53rd Spring Topology and Dynamical Systems Conference, University of Birmingham, Birmingham, Alabama, March 14–16, 2019.
- Graduate Research Assistantship (supervisor: Dr. Jing Tao), University of Oklahoma, Fall 2017 – Spring 2018.
- Richard V. Andree Memorial Scholarship Award, University of Oklahoma, April 2017.

- University of Oklahoma Dissertation Completion Fellowship, Fall 2016.
- Cornell Topology Festival Support Award, April 2015.
- **Provost Certificate of Distinction in Teaching, University of Oklahoma, Spring 2014.**
- Nancy Scofield Hester Mathematics Scholarship, University of Oklahoma, Department of Mathematics, April 18, 2014
- John Clark Brixey Graduate Scholarship, University of Oklahoma, April 15, 2014.
- Department of Mathematics International Graduate Student Scholarship, University of Oklahoma, 2013–2017.

SEMINAR AND INVITED TALKS

- *Artin groups via mapping class groups:*
 - South Central Topology Conference, New Mexico State University at Las Cruces, April 24–25, 2027 (scheduled).
 - Bowling Green State University Mathematics Department Colloquium (online), November 21, 2025.
 - Geometry and Geometric Analysis (GAGA) Seminar, Texas Christian University, Fort Worth, Texas, September 2, 2025.
 - “Artin Groups, Braids, and Mapping Class Groups: Celebrating the Work of Luis Paris”, Cáceres, Spain, June 16–20, 2025.
 - “Combinatorial Nonpositive Curvature” workshop, BIRS, Banff, Canada, September 5, 2024.
- *Divergence in Coxeter groups:*
 - Topology Seminar (online), UW–Milwaukee, Milwaukee, Wisconsin, February 1, 2023.
 - Geometry and Geometric Analysis (GAGA) Seminar, Texas Christian University, Fort Worth, Texas, November 4, 2022.
 - Bowling Green State University – University of Toledo joint Geometry and Topology seminar (online), September 8, 2022.
 - Long-distance seminar on Geometric Group Theory, UNAM, Mexico, March 17, 2022.
 - FSU/UF joint topology and geometry meeting, University of Florida, Gainesville, Florida, February 11–12, 2022
 - WIMSA Workshop: Braids, Links and Applications, Institute of the Mathematical Sciences of the Americas, Miami, Florida, November 15–18, 2021.
 - Millican Colloquium, University of North Texas, Denton, Texas, October 22, 2021.
- *Commensurability of spherical Artin groups*
 - World of GroupCraft (online), August 25–26, 2021
- *Intersections and joins of subgroups in free groups*
 - Virtual Geometric Group Theory Conference, CIRM, Luminy, June 1–5, 2020.
- *Uncountably many quasi-isometry classes of groups of type FP (and their homological Dehn functions):*
 - Topology and Geometry Seminar, Florida State University, Tallahassee, Florida, January 19, 2021.

- Groups and Dynamics Seminar, Texas A&M University, College Station, Texas, November 25, 2020.
- Geometry and Topology Seminar, Binghamton University, Binghamton, New York, November 5, 2020.
- AMS Fall Western Sectional Meeting, University of California, Riverside, California, November 9–10, 2019.
- Geometry, Topology and Dynamical Systems Seminar, University of Texas at Dallas, Richardson, Texas, September 30, 2019.
- Geometry and Topology Seminar, University of Sydney, Sydney, Australia, June 18, 2019.
- Geometric Group Theory Seminar, Ohio State University, Columbus, Ohio, March 26, 2019.
- Geometric Group Theory and Topology Seminar, Tufts University, Medford, Massachusetts, October 24, 2017.
- Geometry and Topology Seminar, University of Oklahoma, Norman, Oklahoma, February 22, 2017.
- Geometry Seminar, University of Arkansas, Fayetteville, Arkansas, February 16, 2017.
- *Subgroups of right-angled Artin groups and their Dehn functions:*
 - TCU Mathematics Colloquium, Texas Christian University, Fort Worth, Texas, February 20, 2019.
- *Dehn functions of subgroups of right-angled Artin groups:*
 - Virtual Geometry and Topology Seminar, Louisiana State University, Baton Rouge, Louisiana, August 29, 2018.
 - MSRI Introductory Seminar, MSRI, Berkeley, California, August 31, 2016.
 - Purdue Geometry Seminar, Purdue University, West Lafayette, Indiana, February 1, 2016.
- *Right-angled Artin groups and their subgroups:*
 - Informal Geometry and Topology Seminar, Louisiana State University, Baton Rouge, Louisiana, August 29, 2018.
- *Virtually special free-by-cyclic groups:*
 - Geometry and Topology Seminar, University of Oklahoma, Norman, Oklahoma, November 12, 2014.
- *Higman’s group and its relatives:*
 - Graduate Student Geometry and Topology Seminar, University of Oklahoma, Norman, Oklahoma, October 20, 2014.
- *A new linearity criterion of Bou–Rabee and McReynolds:*
 - Geometry and Topology Seminar, University of Oklahoma, Norman, Oklahoma, April 30, 2014.

- *Artin groups via mapping class groups*
 - AMS Fall Southeastern Special Meeting, Special Session on Coarse Geometry of Non-positively Curved Complexes and Groups with an Emphasis on Coxeter and Artin Groups, Tulane University, New Orleans, LA, October 3–5, 2025.
 - Mapping class groups and beyond: A workshop to celebrate contributions of Mustafa Korkmaz, Middle East Technical University, Ankara, Türkiye, May 14–18, 2025.
- *Property R_∞ for Artin groups*
 - The 37th Summer Conference on Topology and Applications, Youngstown University, Youngstown, OH, July 17–21, 2023.
 - The 40th annual workshop in Geometric Topology, Colorado College, Colorado Springs, CO, June 15–17, 2023.
 - Redbud Topology Conference, University of Oklahoma, Norman, OK, March 31–April 2, 2023.
 - The South Central Topology Conference II, Texas State University, San Marcos, TX, February 11–12, 2023.
- *Divergence in Coxeter groups*
 - The 39th annual (online) workshop in Geometric Topology, TCU, June 6–9, 2022.
 - AMS Spring Eastern Virtual Sectional Meeting, Special Session on Subgroups in Non-positive Curvature, March 19–20, 2022.
 - 55th annual Spring Topology and Dynamics Conference, Baylor University, Texas, March 9–13, 2022.
- *Groups of type FP_2 : how many of them are there?*
 - Young Geometric Group Theory X, Newcastle University (online), July 26–30, 2021
- *Groups of type FP : their quasi-isometry classes and homological Dehn functions*
 - Beyond Hyperbolicity at the Ohio State University, June 28–July 2, 2021.
 - The 38th annual (online) workshop in Geometric Topology, TCU, June 15–17, 2021.
 - GAGTA 2021, University of Edinburgh, June 7–11, 2021 (online).
- *Intersections and joins in free groups:*
 - AMS Spring Eastern Sectional Meeting, Tufts University, Medford, Massachusetts, March 21–22, 2020 (Canceled due to Covid-19).
 - AMS Fall Southeastern Sectional Meeting, University of Arkansas, Fayetteville, Arkansas, November 3–4, 2018.
- *On the stable commutator length in (two-dimensional) right-angled Artin groups:*
 - 52nd Spring Topology and Dynamical Systems Conference, Auburn University, March 14–17, 2018.
 - Fall 2017 Redbud Topology Conference, University of Oklahoma, Norman, Oklahoma, November 18, 2017.
- *Uncountably many quasi-isometry classes of groups of type FP :*
 - 53rd Spring Topology and Dynamical Systems Conference, University of Birmingham, Birmingham, Alabama, March 14–16, 2019.
 - Topological and Homological Methods in Group Theory, Bielefeld, Germany, April 3–6, 2018.

- JMM San Diego, January 10–13, 2018.
- AMS Fall Central Sectional Meeting, University of North Texas, Denton, Texas, September 9–10, 2017.
- 32nd Summer Conference on Topology and Its Applications, University of Dayton, Dayton, Ohio, June 27–30, 2017.
- *Dehn functions of subgroups of right-angled Artin groups:*
 - Topology Students Workshop, Georgia Institute of Technology, Atlanta, Georgia, June 6–10, 2016.
 - 50th Spring Topology and Dynamics Conference, Baylor University, Waco, Texas, March 10–13, 2016.
 - Geometric and Probabilistic Methods in Group Theory and Dynamical Systems, Texas A&M University, College Station, Texas, November 9–12, 2015.
 - 13th annual Graduate Students Geometry and Topology Conference, Urbana-Champaign, Illinois, March 28–29, 2015.
- *Lubotzky’s linearity criterion:*
 - Algebra Symposium, University of North Texas, Denton, Texas, November 9, 2013

SERVICE AND OUTREACH

- Referee for the journals:
 - Algebraic and Geometric Topology*
 - Groups, Geometry and Dynamics*
 - Journal of Algebra*
 - Journal of Group Theory*
 - Proceedings of the AMS*
 - Proceedings of the Royal Society of Edinburgh (Section A: Mathematics)*
- Co-organizer of the Redbud topology conference, University of Oklahoma, Norman, April of 2014 and 2016.
- Co-organizer of the University of Oklahoma annual math contest “Math Day” for high school students: Fall of 2013, 2014, and 2015.
- Co-organizer of the English language training seminars for international students at the Department of Mathematics, University of Oklahoma, Fall 2013.
- Co-organizer of the 9th annual Graduate Student Topology Conference, Michigan State University, East Lansing, April 2–3, 2011.
- Organizer of the Graduate Students Algebraic Topology Seminar, Michigan State University, Spring 2011.

TEACHING EXPERIENCE

Southern Methodist University, Dallas, TX

- Calculus I: Spring 2026
- Calculus for Business: Spring 2026, Fall 2026
- Pre-Calculus for Business: Fall 2025, Fall 2026
- Pre-Calculus: Fall 2025

University of North Texas, Denton, TX

- Calculus II: Spring 2023, 2024
- Business Calculus: Fall 2024
- Discrete Mathematics: Spring 2025
- Linear Algebra and Vector Geometry: Fall 2022, 2023, 2024

Florida State University, Tallahassee, FL

- Calculus with Analytic Geometry II, Fall 2021, Spring 2022

Louisiana State University, Baton Rouge, LA

- Calculus II (2 small classes, online), Spring 2021
- Calculus II (large class), Fall 2019
- Calculus I (small class), Fall 2018

University of Oklahoma, Norman, OK

Lecturer of small class and recitations session leader:

- Courses taught: Calculus-I,II,III, Honors Calculus-II,III.

Michigan State University, East Lansing, MI

Lecturer of small class and recitations session leader:

- Courses Taught: College Algebra, College Algebra and Trigonometry, Survey of Calculus, Calculus-I, Calculus-II;
- Served as the Supervisor for the Math Learning Center.

PROFESSIONAL
MEMBERSHIP

American Mathematical Society

OTHER

Proficient in GAP, Mathematica, Sage, and Maple. Written software to support research by experimenting with different classes of groups, complexes and other combinatorial objects on computer. Languages: Russian (native), English (fluent).

REFERENCES:

Noel Brady

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University of Oklahoma
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Louisiana State University
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