

Jean Pierre Mutanguha (he/him)

Princeton University
Princeton, New Jersey, USA.

jpmutang@princeton.edu
<https://mutanguha.com>

Research Interests

Interested in geometric group theory: recently, I have been working on relating various dynamical properties of free group endomorphisms to algebraic or geometric properties of their mapping tori.

Positions

Princeton University <i>Instructor — Princeton, New Jersey, USA</i>	2022–2024
Institute for Advanced Study <i>Member, Visitor — Princeton, New Jersey, USA</i>	2021–2024
Max Planck Institute for Mathematics <i>Postdoctoral Fellow — Bonn, Germany</i>	2020–2021

Education

PhD in Mathematics <i>University of Arkansas</i> Dissertation: Hyperbolic Endomorphisms of Free Groups Advisor: Matt Clay	2014–2020
BSc in Mathematics <i>Oklahoma Christian University</i> Honors Project: Point-Set Topology and Unique Trigonometric Series Representation Minor: Finance	2011–2014

Research Articles

Hyperbolic hyperbolic-by-cyclic groups are cubulable.

with François Dahmani and Suraj Krishna M S
to appear in *Geom. Topol.* arxiv:2306.15054

Limit trees for free group automorphisms: universality.

preprint. arxiv:2210.01275

Limit pretrees for free group automorphisms: existence.

to appear in *Forum Math. Sigma* arxiv:2112.10846

The minimal genus problem for right angled Artin groups.

with Rachael Boyd and Thorben Kastenzholz
Geom. Dedicata 217: 93, 2023. doi:10.1007/s10711-023-00815-w

Constructing stable images.

preprint. mpim:2021/41

The dynamics and geometry of free group endomorphisms.

Adv. Math. 384: 107714, 2021. doi:10.1016/j.aim.2021.107714

Irreducibility of a free group endomorphism is a mapping torus invariant.

Comment. Math. Helv. 96(1): 47–63, 2021. doi:10.4171/cmh/506

Irreducible nonsurjective endomorphisms of F_n are hyperbolic.

Bull. Lond. Math. Soc. 52(5): 960–976, 2020. doi:10.1112/blms.12377

Hyperbolic immersions of free groups.

Groups Geom. Dyn. 14(4): 1253–1275, 2020. doi:10.4171/ggd/580

Teaching Experience

Princeton University

2022–2024

Instructor⁺/*Preceptor*[°]

Multivariable Calculus^{+°}, Linear Algebra[°],
Math for Economics/Life Sciences⁺

University of Arkansas

2014–2020

Instructor of Record⁺/*Teaching Assistant*[°]

Survey of Calculus⁺, College Algebra⁺, Finite Math⁺
Calculus 3^{+°}, Differential Equations[°]

Academic Recognition

William Alton Anderson Endowed Scholarship in Arts & Sciences

2019–2020

Lawrence Jesser Toll Scholarship

2018–2019

John C Massie Memorial Fund

2017–2018

Lawrence Jesser Toll Scholarship

2016–2017

Lawrence Jesser Toll Award

2015–2016

Outstanding MCIS Senior

2014

MCIS Alumni Scholarship

2013

Outstanding MCIS Sophomore

2012

Skills

Multilingual: English, French, Kinyarwanda, Kiswahili

Software: JAVA, NODEJS, PYTHON, L^AT_EX, R, SAGE

Minicourses

Geometry of Subgroups (CRM Workshop) — Montréal, Canada

May 2023

Riverside Workshop on GGT — Riverside, CA

Mar. 2023

Workshops Organized

Rigidity properties of free-by-cyclic groups (AIM) — Pasadena, CA

Oct. 2023

Invited and Contributed Talks

UW-Milwaukee Colloquium — Milwaukee, WI.	Mar. 2024
PATCH Seminar — Swarthmore, PA.	Feb. 2024
ND Topology Seminar — Notre Dame, IN.	Dec. 2023
Complex Analysis, Dynamics and Geometry Seminar — Ann Arbor, MI.	Nov. 2023
The OSU Topology Seminar — Columbus, OH.	Sep. 2023
Groups, Actions, and Geometries — Medford, MA.	Aug. 2023
UChicago Geometry & Topology Seminar — Chicago, IL.	May 2023
UMD Geometry–Topology Seminar — College Park, MD.	Mar. 2023
YGGT XI — Münster, Germany.	Feb. 2023
Rice Topology Seminar — Houston, TX.	Jan. 2023
Differential Geometry & Topology Seminar — Cambridge, England.	Dec. 2022
Geometry/Topology Seminar — Piscataway, NJ.	Dec. 2022
QU Dynamics, Group, Geometry Seminar — Kingston, Canada.	Nov. 2022
QU Department Colloquium — Kingston, Canada.	Nov. 2022
McGill Geometric Group Theory Seminar — Montréal, Canada.	Nov. 2022
Geometry & Topology Seminar — New Haven, CT.	Nov. 2022
Group Theory Seminar — New York, NY.	Oct. 2022
Dynamics Seminar — Madison, WI.	Oct. 2022
Columbia Geometric Topology Seminar — New York, NY.	Sep. 2022
Columbia Undergraduate Colloquium — New York, NY.	Sep. 2022
Modern advances in geometric group theory — Manchester, England. [online]	Sep. 2022
World of GroupCraft II — Global. [online]	Sep. 2022
Topology Seminar — Baton Rouge, LA.	Aug. 2022
CAARMS 2022 — Princeton, NJ.	July 2022
Mapping Class Groups and $\text{Out}(F_n)$ (IHP Conference) — Paris, France.	Apr. 2022
Knot Online Seminar — Global. [online]	Apr. 2022
GGTT Seminar — Medford, MA.	Mar. 2022
Arithmetic Groups Seminar (IAS) — Princeton, NJ.	Mar. 2022
Topology Seminar — Fayetteville, AR. [online]	Mar. 2022
Geometry and Topology Seminar — Philadelphia, PA.	Feb. 2022
Topology Seminar (PU) — Princeton, NJ. [online]	Feb. 2022
Geometry and Analysis on Groups Seminar — Vienna, Austria. [online]	Nov. 2021
RTG Colloquium — Göttingen, Germany.	Oct. 2021
STDC 2021 Special Session — Murray, KY. [online]	May 2021
GGTT Seminar — Medford, MA. [online]	Apr. 2021
GGSE Meeting — Coventry, England. [online]	Mar. 2021
AMS Special Session — Atlanta, GA. [online]	Mar. 2021
DAGGER Seminar — Coventry, England. [online]	Feb. 2021
GGT Seminar — Münster, Germany. [online]	Nov. 2020
Geometry and Topology Seminar — Bristol, England. [online]	Nov. 2020
MAXIMALS Seminar — Edinburgh, Scotland. [online]	Oct. 2020
USTARS 2020 — Iowa City, IA.	[cancelled] Apr. 2020
STDC 2020 Special Session — Murray, KY.	[cancelled] Mar. 2020
AMS Special Session — Charlottesville, VA.	[cancelled] Mar. 2020
2019 Fall Redbud Topology Conference — Stillwater, OK.	Nov. 2019
Topology & Group Theory Seminar — Nashville, TN.	Oct. 2019
Summer 2019 Wasatch Topology Conference — Midway, UT.	Aug. 2019

GAGTA 2019 — Tel Aviv, Israel.	May 2019
GGD/GEAR Seminar — Urbana-Champaign, IL.	Apr. 2019
GSTGC 2019 — Urbana-Champaign, IL.	Mar. 2019
AMS Special Session — Auburn, AL.	Mar. 2019
Manhattan Algebra Day 2018 — New York, NY.	Dec. 2018
AMS Special Session — Fayetteville, AR.	Nov. 2018

Attended Conferences/Workshops

Reflections on Geometry: 3-Manifolds, Groups and Singularities — New York, NY.	June 2022
Groups Acting on Fractals (CIRM Introductory School) — Luminy, France.	Apr. 2022
*2020 Spring Redbud Topology Conference — Fayetteville, AR.	Mar. 2020
*Aspects of Nonpositive and Negative Curvature in Group Theory — Luminy, France.	June 2019
*2019 Spring Redbud Topology Conference — Norman, OK.	Apr. 2019
Summer 2018 Wasatch Topology Conference — Midway, UT.	Aug. 2018
GAGTA 2018 — Seoul, South Korea.	July 2018
Topology Students Workshop — Atlanta, GA.	June 2018
Geometry of Outer Spaces and Outer Automorphism Groups — Coventry, England.	Apr. 2018
*YGGT VII — Les Diablerets, Switzerland.	Mar. 2018
2017 Spring Redbud Topology Conference — Fayetteville, AR.	Apr. 2017
Tech Topology Conference — Atlanta, GA.	Dec. 2016
MSRI Introductory Workshop: Geometric Group Theory — Berkeley, CA.	Aug. 2016
2016 Spring Redbud Topology Conference — Norman, OK.	Apr. 2016
* <i>Presented a 5-min lightning talk.</i>	