Kennedy Obinna Idu

Curriculum Vitae

Department of Mathematics,
University of Toronto,
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✉ *idu@math.toronto.edu*

EMPLOYMENT

2022 -	**Postdoctoral Fellow**, *University of Toronto*, Canada (Supervisors: Almut Burchard, Robert L. Jerrard)
2021-2022	**Postdoctoral Fellow**, *The Fields Institute for Research in Mathematical Sciences*, Toronto (Supervisors: Almut Burchard, Robert L. Jerrard)

EDUCATION

2017-2021	**PhD in Mathematics**, *Universita di Pisa*, Italy
	Thesis: Higher Order Rectifiability Criteria and a Model for Soap Films
	Advisor: Giovanni Alberti
2016-2017	**Dip. in Mathematics**, *International Center for Theoretical Physics (ICTP)*, Trieste
	Thesis: Toric Varieties
	Advisor: Lothar Goettsche
2015-2016	**MSc. in Mathematics**, *African University of Science and Technology (AUST)*, Abuja
	Thesis: On J-fixed Points of J-Pseudocontractions with Applications
	Advisor: Charles E. Chidume
2007-2012	**BTech. in Mathematics & Comp. Sci.**, *Federal university of technology*, Owerri
	Thesis: Topology and Networks
	Supervisor: Kevin E. Osondu

WORK EXPERIENCE

Teaching experience

MAT235 2022/2023, 2023/2024	**Instructor**, *University of Toronto*, Toronto, Canada Teaching full year multivariable calculus course for second year students.
Analisi matematica II 2018/2019	**Graduate Teaching Assistant**, *University di Pisa*, Pisa, Italy Tutorials for second year analysis course (equiv. calculus III) for students of energy engineering and chemical engineering, university of Pisa.
Mathematical methods I 2012/2013	**Grader**, *Federal University of Technology*, Owerri Graded examination for the course MTH 201:Mathematical Methods I (Equiv. Calculus I & II)

Mentorship

Undergraduate research	**NSERC Undergraduate Summer Research, 2023**, *University of Toronto* Worked with Charles Griffin, undergraduate in NSERC project supervised by Robert L. Jerrard

Others

2014-2016	**Workshop Organiser**, *at several institutions* Carried out software LaTeX and Matlab training Workshops at the following ○ Staff departments of mathematics and statistics, Imo state university. ○ Staff and students department of mathematics, university of Lagos. ○ Staff department of mathematics, federal college of education, Akoka.
July-Dec. 2014	**Computer Instructor & Analyst**, *Alliance Francaise Owerri*, Imo Taught classes in computer science, microsoft office software and web design

2013 - 2014	**Computer Instructor & Systems Engineer**, *Owan-East Skills Acquisition centre*, Afuze
	○ Taught classes in computer science and engineering and carried out general systems maintenance and installation works at number of schools'/institutions' computer labs.

▬▬ RESEARCH

My research is in the areas of geometric measure theory, calculus of variations, partial differential equations and nonlinear operator theory with applications to convex optimization and solutions of Hammerstein integral equations.

Publications and preprints

1. **Charles Griffin, Kennedy Obinna Idu, and Robert L. Jerrard**, *Alexandrov's estimate revisited*, arXiv:2310.20612, 2023

2. **Giacomo Del Nin and Kennedy Obinna Idu**, *Geometric criteria for $C^{1,\alpha}$ rectifiability*, J. Lond. Math. Soc., 105(1), 2022

3. **K.O. Idu, V. Magnani, and F.P. Maiale**, *Characterizations of k-rectifiability in homogenous groups*, Journal of Mathematical Analysis and Applications, 500(2), 2021

4. **Kennedy Obinna Idu and Francesco Paolo Maiale**, *$C^{1,\alpha}$-rectifiability in low codimension in Heisenberg groups*, arXiv:2102.05165, 2021 (Accepted: Anal. Geom. Metr. Spaces)

5. **Chidume, C., Uba, M., Uzochukwu, M., Otubo, E., & Idu, K.O.**, *A Strong Convergence Theorem for an Iterative Method for Finding Zeros of Maximal Monotone Maps with Applications to Convex Minimization and Variational Inequality Problems*, Proceedings of the Edinburgh Mathematical Society, Vol. 62, no. 1, 2019

6. **C.E. Chidume and K.O. Idu**, *Approximation of zeros of bounded maximal monotone maps, solutions of Hammerstein integral equations and convex minimization problems*, Fixed Point Theory and App., Vol. 97, 2016

▬▬ HONORS, AWARDS AND FELLOWSHIPS

2023	The Frederick V. Atkinson Teaching Award, Univ. of Toronto, Dept. of Math.
2021-22	Fields-AIMS-Perimeter Postdoctoral Fellowship
2017-2021	PhD Scholarship, Universita di Pisa
2017	INdAM-DP-COFUND-2015 Doctoral Fellowship *(Declined)*
2016	ICTP Postgraduate Diploma Program Scholarship
2016	(Joint)-Best Graduating Student in Pure and Applied Mathematics, AUST, Abuja
2015	Nelson Mandela Institute (NMI) graduate scholarship at AUST, Abuja.
2010	MTN-Nigeria Foundation Undergraduate Scholarship.
2008	Addax Petroleum Nigeria Limited Undergraduate Scholarship

▬▬ INVITED TALKS/SEMINARS

Dec., 2023	**Special session on Geometry in calculus of variations and PDEs**, *2023 CMS Winter Meeting, Dec. 1-4, 2023, Montreal*
7 Oct., 2023	**Special Session on Harmonic Analysis in the Midwest**, *2023 Fall Central AMS Sectional Meeting, Omaha, Nebraska*
2 Dec., 2022	**Variational Analysis: Applications and Theory section**, *2022 CMS Winter Meeting, Toronto, ON*
4 June, 2022	**Harmonic Analysis & PDEs section**, *2022 CMS Summer Meeting, St John's, NL*

5 Nov., 2021	**Postdoc Colloquium**, *Fields Institute*
24 Sept., 2021	**Analysis and Applied Math Seminar**, *University of Toronto*
24 June, 2021	**Seminari M.A.P**, *Dipartimento di Matematica, Universita di Pisa*

WORKSHOPS/CONFERENCES/SCHOOLS

1. 2023 CMS Winter Meeting, Dec. 1-4, 2023, Montreal, Canada
2. 2023 Fall Central Sectional Meeting, 7-8 October, 2023, Creighton University, Omaha, NE.
3. 2022 CMS Winter Meeting, December 2-5, 2022, Toronto, Ontario, Canada.
4. Workshop: Extremal Problems in Harmonic Analysis, Convexity, and Bellman Functions, Nov. 28 - Dec. 2, 2022, ICERM, Providence, RI (Virtual participant).
5. 2022 CMS Summer Meeting, June 3-6, 2022, St John's, Newfoundland, Canada.
6. Workshop on Nonlinear Operator Theory, Convex optimization and Partial Differential Equations, March 2-4, 2022, ONLINE (**Co-organizer**)
7. XXX Convegno nazionale di calcolo delle variazioni, February 03-07, 2020, Levico Terme.
8. AMS Fall Central Sectional Meeting, Sept. 14-15, 2019, University of Wisconsin-Madison, Madison
9. CIME School "Geometric Measure Theory & Applications " - Cetraro, September 2-6, 2019
10. 11th School on Analysis and Geometry in Metric Spaces, June 24-28, 2019, CIRM Levico Terme.
11. Some Topics Of Geometric Analysis And Geometric Measure Theory, 16th-17th April, 2019, CRM Ennio De Giorgi, Pisa.
12. Alessio Figalli, Fields Medalist 2018, 14th-17th Jan., 2019, CRM Ennio De Giorgi, Pisa
13. Optimal transportation and Applications, 12th-16th Nov., 2018, CRM Ennio De Giorgi, Pisa
14. Geometric Methods On Singular Spaces Versus Microlocal Analysis, 1st-4th Nov., 2018, CRM Ennio De Giorgi, Pisa
15. Workshop MAR: Metric Analysis And Regularity, 24th-28th September 2018, Catania
16. A Sub-Riemannian Day In Padova, September 14, 2018, Padova
17. Workshop "Geometric Measure Theory in Verona", 11th-15th June, 2018, Verona.
18. New Method in Finsler Geometry, 21st-25th May, 2018, CRM Ennio De Giorgi, Pisa
19. Celebrating the 25th anniversary of "Calculus of Variations and Partial Differential Equations", 18th May, 2018, CRM Ennio De Giorgi, Pisa

KEY SKILLS

Computer skills

Languages:	Matlab, C++, Mathematica	Design:	HTML, CSS, TeX, Photoshop

Technical:	Systems administrator and analyst, repairs technician, Network administrator.

Foreign Languages

Italian	Intermediate	*From classes and about five years stay in Italy.*
French	Beginner	

PROFESSIONAL AND COMMUNITY SERVICE

Reviewer	AMS Mathscinet
Teaching	Volunteer math and computer science instructor at high schools in Nigeria and Italy
Consultancy	Sub-committee leader of educators for establishment of a high school in Canada
Speaker	Invited to give math talks at the following social events

- International Center for Theoretical Physics (ICTP), Trieste: Students outreach programs, 2017 (see e.g., https://youtu.be/-_a2edqnzxg?t=3578).
- Society of Petroleum Engineers (SPE), AUST chapter, Students outreach, 2016

Member	○ Mathematical societies: Canadian Mathematical Society (CMS), American Mathematical Society (AMS), European Mathematical Society (EMS)
	○ Equity, Diversity and Inclusion (EDI) committee, Dept. of Math, Univ. of Toronto
Organization	○ **Co-organiser**: Analysis and applied math seminar, Dept. of Math, Univ. of Toronto
	○ **Co-organiser**: Workshop on Nonlinear Operator Theory, Convex optimization and Partial Differential Equations, March 2-4, 2022, Virtual.