

Alex Behakanira Tumwesigye

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Born: July 21, 1982—Kampala, Uganda

Nationality: Ugandan

Current position

Lecturer, Department of Mathematics, Makerere University.

Coordinator, The Eastern Africa Universities Mathematics Programme (EAUMP), Makerere Node.

Areas of specialisation

Mathematics; Ring Theory and Applications.

Appointments held

- 2007 Teaching Assistant, Makerere University
- 2013 Assistant Lecturer, Makerere University
- 2019 Lecturer, Makerere University
- 2019 Adjunct Lecturer, Mälardalen University, Sweden

Education

- 2006 BSC in Mathematics, Makerere University, Uganda
- 2009 DIP. in Mathematics, ICTP, Italy
- 2012 MSC in Mathematics, Makerere University, Uganda
- 2016 LICENTIATE in Mathematics, Mälardalen University, Sweden
- 2018 PHD in Mathematics, Mälardalen University, Sweden

Fellowships

2018 Postdoc fellowship at Mälardalen University

Publications

- 2014 Silvestrov, S. D., Tumwesigye, A. B. (2014) On monomial commutativity of operators satisfying commutation relations and periodic points for one-dimensional dynamical systems, *AIP Conference Proceedings*, 1637, 1110-1119.
- 2016 Richter, J., Silvestrov, S. D., Ssembatya, V. A., Tumwesigye, A. B., (2016). Crossed product algebras for piecewise constant functions, in Silvestrov S., Rančić M., (eds.), *Engineering Mathematics II. Algebraic, stochastic and analysis structures for networks, data classification and optimization, Springer Proceedings in Mathematics and Statistics, Springer*, 75-93.
- 2016 Richter, J., Silvestrov, S. D., Tumwesigye, A. B., (2016). Commutants in crossed products for algebras of piecewise constant functions, in Silvestrov S., Rančić M., (eds.), *Engineering Mathematics II. Algebraic, stochastic and analysis structures for networks, data classification and optimization, Springer Proceedings in Mathematics and Statistics, Springer*, 95-108.
- 2016 Tumwesigye, A. B., (2016), On one-dimensional dynamic systems and commuting elements in non-commutative algebras, *Licentiate thesis*.
- 2018 Tumwesigye A. B., Dynamical systems and commutants in non commutative algebra, *PhD Thesis*
- 2019 Djinja, D., Silvestrov, S. D., Tumwesigye, A. B., (2019). Multiplication and Linear Integral Operators on L_p Spaces Representing Polynomial Covariant Type Commutation Relations.. In *International Conference on Stochastic Processes and Algebraic Structures* (pp. 205–231). Cham: Springer International Publishing.
- 2019 Djinja, D., Silvestrov, S. D., Tumwesigye, A. B., (2019). Representations of Polynomial Covariance Type Commutation Relations by Linear Integral Operators on L_p Over Measure Spaces. In *International Conference on Stochastic Processes and Algebraic Structures* (pp. 59–95). Cham: Springer International Publishing.
- 2019 Silvestrov, S. D., Tumwesigye, A. B., (2019). Commutants in Crossed Products for Piecewise Constant Function Algebras Related to Multiresolution Analysis. In *International Conference on Stochastic Processes and Algebraic Structures* (pp. 709–724). Cham: Springer International Publishing.
- 2020 Tumwesigye, A. B., Richter, J., Silvestrov, S. D., (2020). Commutants in crossed products for algebras of piecewise constant functions on the real line. In: Silvestrov S., Malyarenko A., Rančić M., (eds.), *Algebraic structures and applications. SPAS2017. Springer Proceedings in Mathematics and Statistics, vol 317. Springer, Cham*.
- 2020 Tumwesigye, A. B., Richter, J., Silvestrov, S. D., (2020). Ore extensions of function algebras. In: Silvestrov S., Malyarenko A., Rančić M., (eds.), *Algebraic*

- structures and applications. *SPAS2017. Springer Proceedings in Mathematics and Statistics, vol 317. Springer, Cham.*
- 2020 Tumwesigye, A. B., Richter, J., Silvestrov, S. D., (2020). Centralizers in skew PBW extensions. In: Silvestrov S., Malyarenko A., Rančić M., (eds.), *Algebraic structures and applications. SPAS2017. Springer Proceedings in Mathematics and Statistics, vol 317. Springer, Cham.*
- 2023 Djinja, D., Silvestrov, S. D., Tumwesigye, A. B., (2023). Some Algebraic Properties of Representations of Polynomial Covariance Commutation Relations. In *Algebra without Borders—Classical and Constructive Nonassociative Algebraic Structures: Foundations and Applications* (pp. 379–417). Cham: Springer International Publishing.
- 2023 Djinja, D., Silvestrov, S. D., Tumwesigye, A. B., (2023). Representations of Polynomial Covariance Type Commutation Relations by Over Linear Measure Integral Spaces Operators on L_p . *Stochastic Processes, Statistical Methods, and Engineering Mathematics: SPAS 2019, Västerås, Sweden, September 30–October 2.* Cham: Springer International Publishing.
- 2024 Djinja, D., Silvestrov, S. D., Tumwesigye, A. B., (2024). Linear integral operators on L_p spaces representing polynomial covariance type commutation relations. *Afrika Matematika*, 35(1), 18.

Conferences, Schools and Workshops Attended

- 2007 EAUMP summer school on counting points in polytopes, *University of Dar es Salam, Tanzania.*
- 2008 The first East African school on linear algebra, "From bases to the Google Algorithm," *Makerere University, Uganda.*
- 2008 Curriculum Development and Pedagogy Workshop: Teacher in Higher education, Role and Pedagogy, *School of Education, Makerere University, Uganda.*
- 2010 Algebra, Geometry and Mathematical Physics conference, *Göteborg, Sweden.*
- 2013 Advanced school and workshop in Real and Complex Dynamics, *The Abdusalam International Center for Theoretical Physics, (ICTP), Italy.*
- 2014 10th International conference on Mathematical Problems in Engineering, Aerospace and Sciences: *ICNPAA: Narvik, Norway.* Presented a paper: On monomial commutativity of operators satisfying commutation relations and periodic points for one-dimensional dynamical systems.
- 2017 ISPMAM Mälardalen International Science Programme Workshop in Mathematics and Applied Mathematics, *Västerås, Sweden.*
- 2017 International Conference on Stochastic Processes and Algebraic Structures – From Theory Towards Applications:- *Västerås- Stockholm, Sweden.* Presented a paper, “Ore extensions of function Algebras.”
- 2019 EAUMP - ICTP Summer School on Algebraic Topology and its Applications, *Makerere University, Uganda*
- 2019 The second International Conference on Stochastic Processes and Algebraic

Structures – From Theory Towards Applications-: *Västerås, Sweden*. Presented a paper, “Crossed product algebras of piecewise constant function algebras and multiresolution analysis.”

2023 The Joint African Nordic in Mathematics -: *Kampala, Uganda*. Was the Secretary to the Local Organizing Committee.

Postgraduate Supervision

I have supervised the following postgraduate students.

- Dr. Silas Kito, PhD. Mathematics, Makerere University, Uganda, – Graduated.
- Mr. Domingos Celso, PhD. Mathematics, Mälardalen University, Sweden, –Graduated.
- Mr. Yasin Segawa, MSc. Mathematics, Makerere University, Uganda, –Graduated.
- Ms. Luijah Maturu, MSc. Mathematics, Makerere University, –Graduated.
- Mr. Yasin Segawa, PhD. Mathematics, Makerere University, –Uganda, Ongoing.
- Mr. Paul Kivumbi, MSc. Mathematics, Makerere University, –Ongoing.
- Mr. Arnold Ssekago, MSc. Mathematics, Makerere University, Uganda, –Ongoing.

Teaching

- Functional Analysis at both undergraduate and graduate level.
- Linear Algebra both Linear Algebra I and Linear Algebra II at undergraduate level.
- Both Differential and Integral Calculus and Calculus of several variables at undergraduate level.
- Real Analysis at both undergraduate and graduate level.
- Differential Equations and Dynamical Systems at undergraduate level.
- Abstract Algebra (Group Theory) at undergraduate level.
- Measure and Probability at Graduate level.
- Complex Analysis at both undergraduate and graduate level.

- Elementary Probability and Statistics and Probability Theory both at undergraduate level.
- Wavelet theory at graduate level.
- Probability and Statistics at graduate level.
- Integration Theory at graduate level.