

Personal Details

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Education

Date	Institution	Award/Qualification
2016-2021	Linköping University, Sweden	PhD Mathematics
2007-2009	University of Dar es Salaam,	MSc Mathematics
2000-2003	Islamic University in Uganda	BSc.Ed (Math/Physics)

Supervisors	Level	Thesis/Dissertation title
Prof. Jana Björn (Main), Prof. Anders Björn, Assoc. Prof. Tomas Sjödnorn Dr. Geoffrey Ismail Mirumbe Dr. Vincent Ssembatya	PhD	<i>Boundary Value Problems for Nonlinear Elliptic Equations in Divergence Form.</i>
Prof. Jean Michel Tchuenche	MSc	<i>Mathematical Analysis of a Cholera Model with Control Measures.</i>

Work Experience

Feb 2024 - to date	Senior Lecturer, Busitema University;
Aug 2023 - to date	Visiting Lecturer, Islamic University in Uganda (IUIU)
Aug 2013 - Jan 2024	Lecturer, Busitema University;
Jan 2010 - Jul 2013	Assistant Lecturer, Busitema University;
2009 - July 2023	Assistant Lecturer, Islamic University in Uganda
2005 - 2009	Teaching Assistant, Islamic University in Uganda
2005 - 2009	Teacher(Maths/Physics), Busano Secondary School
2003 - 2007	Teacher(Maths/Physics), Hamdan Girls' High School
2004 - 2006	Teacher(Maths/Physics), Nkoma Secondary School
2003 - 2007	Teacher(Maths/Physics), Mt. Masaba High School

Responsibilities/Positions held

Year	Responsibility	Institution
2024 – to date	Senior Lecturer & HOD Mathematics	Busitema University
2021 – Sept 2023	Ag. HOD Mathematics	Busitema University
2021 – to date	Patron, IUBSESA	IUIU
2015 – 2016	Member, Faculty Timetable Committee	FSE
2015 – Jan 2024	Lecturer, Dept. of Mathematics	Busitema University
2014 – 2016	Vice Chairperson, BOG	Nkoma S S
2012 – to date	Member of the Executive, BMDC	UMSC
2012 – 2014	Rep. Faculty of Science	IUASA
2011 – 2014	Member, School Practice Committee	FSE
2010 – 2014	Assistant Lecturer, Dept. of Mathematics	Busitema University
2011 – 2016	Patron, BUBSA	Busitema University
2009 – 2015	Patron, IUSSU	IUIU
2004 – 2005	Head of department, Physics	Hamdan Girls' HS
2002 – 2003	Rep. Physical Science Education (IUSU)	IUIU
2002 – 2003	Mobilizer-Buyonjo road, Min. of off-campus Affairs	IUIU
2002 – 2003	Ass. organising Secretary(IUESA)	IUIU
2001 – 2003	Representative Science (IUESA)	IUIU

Courses Taught

Vectors and Trigonometry, Vector Analysis, Calculus I, II, & III, Linear Algebra I & II, Classical Mechanics, Remedial/HEAC Mathematics, Elements of Probability and Statistics, Probability Theory, Ordinary Differential Equations, Real Analysis I, Complex Variables, Number Theory, Biomathematics and Modelling, General Topology, Mathematical Statistics, Applied Functional Analysis.

Servicing courses: Computing Mathematics to BSc Comp, BIT and DCIT, Mathematics for Chemists, Mathematics for Biologists, Elements of Mathematical Modeling, Methods of teaching and learning of Mathematics, Teaching and learning resources development in mathematics education.

Areas of Research Interest

Mathematical Analysis mainly Linear and Nonlinear Elliptic Equations in \mathbf{R}^n and in Metric Spaces, Epidemiology and Mathematical Modelling.

Research and Publications

- a) Björn, J. and Mwasa, A., Behaviour at infinity for solutions of a mixed nonlinear elliptic boundary value problem via inversion, *Nonlinear Analysis* **258**(2025), 113816 (Corresponding Author)
<https://doi.org/10.1016/j.na.2025.113816>

- b) **Mwasa, A.**, Boundary Value Problems for Nonlinear Elliptic Equations in Divergence Form, *PhD Thesis 2021, LiU Press, Sweden*.
<http://liu.diva-portal.org/smash/record.jsf?pid=diva2%3A1530520&dswid=1212>
- c) Björn, J. and **Mwasa, A.**, Mixed boundary value problem for p-harmonic functions in an infinite cylinder, *Nonlinear Analysis* **202**(2021), 112134. (Corresponding Author)
<https://doi.org/10.1016/j.na.2020.112141>
- d) Björn, A., Björn, J. and **Mwasa, A.**, Resolutivity and invariance for the Perron method for degenerate equations of divergence type, *J. Math. Anal.* **509** (2022), 125937. (Corresponding Author)
<https://doi.org/10.1016/j.jmaa.2021.125937>
- e) Al-arydah, M., **Mwasa, A.**, Tchuenche, J.M. and Smith, R.J., (2013). Modeling cholera disease with education and chlorination, *Biol*, Vol. 21, No.4.
<https://doi.org/10.1142/S021833901340007X>
- f) **Mwasa, A.** and Tchuenche, J.M. (2011). Mathematical analysis of a cholera model with public health interventions, *BioSystems* **105** 190–200.
<https://doi.org/10.1016/j.biosystems.2011.04.001>

IT Related Skills

Computer skills: Microsoft Office, LaTeX, Mathematica, Maple, Sage, Basic Programming skills in C^{++} .

Conferences, Workshops, Summer Schools, Seminars and other trainings

- ◇ Participated in Mathrun organised by Uganda Women in Mathematics (AWOM) for empowering a girl child in Mathematics and Basic Sciences at Tororo Girls' School, 15 March 2025, Uganda.
- ◇ Training Workshop on COMSOL Multiphysics and its Applications in CFD Simulations at Busitema University, 19 – 21 February 2025, Uganda.
- ◇ Attended Women in Sage-Uganda Workshop Makerere University, 4 – 8 September 2023, Uganda
- ◇ Attended and presented a paper entitled “Behaviour at infinity for solutions of a mixed nonlinear elliptic boundary value problem via inversion” at the Joint African-Nordic Conference at Makerere University, 27 – 29 October, 2022, Uganda.
- ◇ Workshop for PhD students and Postdoctoral fellows in Mathematics from Uganda at Linköping University, 25 – 26 November, 2019, Sweden.

- ◇ Fourth network meeting for SIDA–ISP funded PhD and Postdoc students in Mathematics at Bishoftu 5 – 9 August 2019, Ethiopia.
- ◇ Mini courses in Subriemannian Geometry 11 – 16 February 2019, University of Jyväskylä, Finland.
- ◇ Conference in Subriemannian Geometry and Beyond II 18 – 22 February 2019, University of Jyväskylä, Finland.
- ◇ Third network meeting for SIDA–ISP funded PhD and Postdoc students in Mathematics at Entebbe, 20 – 24 August 2018, Uganda.
- ◇ Jyväskylä Summer School 6 – 17 August 2018, University of Jyväskylä, Finland.
- ◇ Rickman Memorial Conference, University of Helsinki 18 – 20 June 2018, Helsinki, Finland.
- ◇ Second network meeting for SIDA–ISP funded PhD students in Mathematics at Stockholm, 26 – 27 February, 2018.
- ◇ Workshop on Geometric Analysis on Metric Spaces, 22 – 24 May 2017 at Linköping University
- ◇ Mathematics in Biology and Medicine, 11 – 12 May 2017 at Linköping.
- ◇ First network meeting for SIDA–ISP funded PhD students in Mathematics at Stockholm, 7 – 8 March, 2017.
- ◇ Third EAUMP conference at Makerere University, 26 -- 28 October, 2016.
- ◇ Gave a brief talk about Busitema University in the departmental meeting on 25th April, 2014 at Mathematics department board room, Tampere University of Technology.
- ◇ Graduate seminar series at the University of Tampere, Finland on 23rd April, 2014. Presented paper on Mathematics Education in Uganda. Practices and Challenges: Case of Busitema University.
- ◇ HEI–ICI Workshop held at Makerere University from 2 -- 11 December 2013 under the theme ‘Mathematics Education and working life relevance in East Africa’. Presented paper on Pedagogical issues in Busitema University.
- ◇ Economic Epidemiology Advanced Study Institute (ASI) and capstone Workshop held at Makerere University, Uganda from 20th July, 2009 to 5th August, 2009.
- ◇ School on set theory and Mathematical logic held at the school of Mathematics, University of Nairobi, Kenya from 6 -- 17 April, 2009.
- ◇ Eastern Africa School on Linear Algebra: from bases to the Google Algorithm held in Mombasa, Kenya from 2 -- 14 December, 2008.
- ◇ First 2008 Eastern Africa school on Linear Algebra: from bases to the Google Algebra from 17 -- 29 March, 2008 at Makerere University, Uganda.

- ◇ Second International Workshop on Industrial Mathematics, at UDSM organized by department of mathematics in conjunction with LUT, from 16 -- 18 June, 2008.
- ◇ Modeling methodology: Data assimilation by Prof. Tuomo Kauranne of Lappeenranta University of Technology (LUT), Finland at UDSM from 15 -- 26 October, 2007.
- ◇ Mathematical modeling: with emphasis on disease dynamics by Prof. Tchuenche J.M, at UDSM from 15 -- 26 October, 2007.
- ◇ Random graphs, Epidemics and vaccination, by Prof. Tom Briton of Stockholm University, Sweden at University of Dar es salaam (UDSM) on 6th November, 2007.

Membership

- ◇ Member, Partial Differential Equations and Applications Group (PDE-APP)
- ◇ Member, Busitema University Academic Staff Association (BUASA).
- ◇ Member, Islamic University Academic Staff Association (IUASA)
- ◇ Council Member, Bugisu Muslim District Council (BMDC)
- ◇ Member of different Faculty Committees e.g. Finance Committee; Appointments and Promotion Committee; Higher Degrees, Research and Innovations Committee; and Chairperson School Practice, Industrial Training and Recess Committee.
- ◇ Registered as Graduate Trained Teacher (Math/Physics) by the Ministry of Education and Sports.

Awards, Grants, Fellowships, and Scholarships

- ◇ Makerere - Sida Bilateral Research Scholarship to study PhD (Math), 2016;

Supervision of Graduate Students

1. Kirabe Samuel, MSc Industrial Mathematics, "Mathematical Analysis of Heat and Moisture Assessment in the Drying Progress of Biomass Briquettes." *graduated November 2025*
2. Wafula Emmanuel, MSc Industrial Mathematics, "Modelling Fibre Suspension Flow in a Pressure Screen: Case of Paper Making from Rice Fibres." *graduated November 2025*
3. Meregulwa Abubakari, MSc Industrial Mathematics, "Effects of Battery Thermal Management System of Li-ion Cell Modules for Application in Electric Vehicles." *graduated November 2025*

4. Watuwa Stanley, MSc Industrial Mathematics, “Mathematical Modelling of Pollutants Dispersion in River Systems. A Case of River Namatala, Mbale City.” *Ongoing*
5. Okiror Godfrey, MSc Industrial Mathematics, “CFD Modelling of Trailer Congestion Pressure at Malaba Border.” *Ongoing*

External/Internal Examination of Graduate Students

1. Yasini Ssegawa, MSc Mathematics Thesis, “On the Wavelet Analysis of $L^2(\mathbf{R})$ Functions.” Makerere University, 2022.
2. Richard Echodu, MSc Mathematics Thesis, “The Solution Space for a Class of Ordinary Differential Equations.” Makerere University, 2024.
3. Arnold Ssekago, “On Characterization of Commutants in Non-commutative Algebras with reference to Discrete Dynamical Systems.” Makerere University, 2025.
4. Adiga Swadiki, MSc Mathematics Thesis, “On the Reality of Zeros of Polynomials Generated by Linear Recurrences.” Muni University, 2025.
5. George William Luyinda, “Effect of Temperature Change and Heat Transfer on Packaged Groundnut Paste.” Busitema University, 2025.

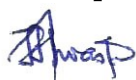
Other Professional Engagements

- ◇ Served as External examiner for BSc with Education (Mathematics courses), Lira University from 2022 to 2025.
- ◇ Participated in curriculum development or reviews for PhD Mathematics, MSc Mathematics, MSc Industrial Mathematics, BSc Education (Mathematics) and Higher Education Certificate(HEC) Mathematics programs.

Referees

- Prof. Jana Björn Department of Mathematics, Linköping University, Sweden
Mob. +46700895203
Email: jana.bjorn@liu.se
- Assoc. Prof. John Mango Department of Mathematics, Makerere University,
P.O Box 7062, Kampala.
Tel: +256-772649455
Email: jmango1966@gmail.com
- Assoc. Prof. David Olema Dean, Faculty of Science and Education,
Busitema University,
P.O. Box 236, Tororo, Uganda.
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- Mr. Opyene Eluk Patrick Lecturer, Mathematics Department,
Faculty of Education, Lira University,
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Abubakar Mwasa, PhD.