CURRICULUM VITAE

YIBELTAL ADANE TEREFE

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1 BIOGRAPHICAL SKETCH

1.1 General Information

Surname	Terefe						
First name	st name Yibeltal South Africa ID number		Africa ber	6707215658182			
Citizenship	Ethiopian	Title	Dr	Female		Male	X

Place of birth	Motta	Nationality	Ethiopian	
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1.2 Academic Qualifications Obtained								
Degree/ DiplomaField of studyHighe		er education institution Year		Distinctions				
Postdoc	Applied Mathematics	Unive Africa	rsity of Pretoria, South	2016- 2017	N/a			
PhD Applied Unive Mathematics Africa			rsity of Pretoria, South	N/a				
MSc	Applied Mathematics	Unive Africa	rsity of Pretoria, South	2012	Yes			
MSc	Mathematics	Addis Ababa University, Ethiopia		1998	N/a			
BSc	Mathematics	Addis	Ababa University, Ethiopia	1989	No			
1.3 Work Experience to Date								
Name of employer			Capacity and/or type of work		Period From (mm//yy to mm//yy)			
University of the Free State, South Africa			Senior Lecturer (full time)		02/2022 to present			
University of Lin	npopo, South Afri	ca	Research associate		01/2020 to 12/2022			
University of Lin	npopo, South Afri	ca	Senior lecturer (full time)		03/2018 to 12/2019			
University of Pre	etoria, South Afric	а	PhD student (full time), Postdocoral fellow and Junior lecturer		01//2013 to 02/2018			
University of Pre	etoria, South Afric	а	MSc student (full time) and Tutor/Teaching Assistant		06/209 to 12/2012			
Addis Ababa Ur	niversity (Ethiopia)	Lecturer (full time)		02/2002 to 05/2009			
Alemaya Univer	sity (Ethiopia)		Lecturer (full time)		09/1998 to 01/2002			
Ministry of educ	ation (Ethiopia)		High school mathematics teacher		09/1989 to 08/1996			

2 **RESEARCH OUTPUTS**

2.1 **Publication in peer-reviewed or refereed journal**

1. **Terefe YA** (with Lubuma JM-S): A nonstandard Volterra difference equation for the SIS epidemiology model, Serie A: Matemáticas, of the Review of the Royal Academy of Exact, Physical and Natural Sciences (abbreviated as RACSAM) 109 (2015), 597-602.

2. Terefe YA (with Chapwanya M and Lubuma JM-S): Analysis and dynamically consistent nonstandard discretization for a rabies model in humans and dogs, Serie A: Matemáticas, of the Review of the Royal Academy of Exact, Physical and Natural Sciences (abbreviated as RACSAM), 110 (2016), 783–798.

3. Terefe YA (with Lubuma JM-S): Global stability for the continuous and discrete SIS-diffusion epidemiological models, *Quaestiones Mathematicae*, 40 (2) (2017), 161–176.

4. **Terefe YA** (with Gumel AB, Lubuma JMS, Sharomi O): Mathematics of a sex-structured model for syphilis transmission dynamics, *Math Meth Appl Sci.* Vol. 41, Issue 18 (2018): 8488-8513.

5. **Terefe YA** (with Berge T, Chapwanya M, Lubuma JMS) : A Mathematical model for Ebola epidemic with self-protection measures. *Journal of Biological Systems* 26(1) (2018), 107-131.

6. Y. A. Terefe (with H. Ga, M. Kamga and L. van der Mescht); Mathematics of a model for Zika transmission dynamics, Journal of Theory in Biosciences, (2018).

7. **Y. A. Terefe:** A sex-structured model for the transmission of trichomoniasis with possible reinfection, Mathematical Population Studies (2020).

8, **Y. A. Terefe** (with Berge, Doungmo Goufo, Tenkam, Hassan and Hussaini): Classical and fractional analysis of the effects of Silicosis in a Mining Community, Alexandria Eng. J. (2020).

9. **Y. Terefe** (with R..Anguelov, T. Berge, J.K. Djoko, M. Chapwanya, P. Kama and J. M-S. Lubuma): Nonstandard Finite Difference Method Revisited and Application to the Ebola Virus Disease Dynamics Transmission, Journal of Difference Equations and Applications.

10. **Y.A. Terefer** (With M. Chapwanya, J. M-S. Lubuma, A. Matusse, H. Lutermann and F. Nyabadza): Mathematical modeling and analysis of Cannabis epidemic in a South African province (Journal of Statistics & Management Systems).

11. Y. A. Terefe (with S. M. Kassa, and H.J.B. Njagarah); Analysis of the mitigation strategies for COVID-19: from mathematical modeling perspective; Chaos, Solitons and Fractals, 138 (2020).

12. **Yibeltal A. Terefe** (with Semu M. Kassa): Analysis of a mathematical model for the transmission dynamics of human melioidosis, International Journal of Biomathematics, Vol. 13, No. 7 (2020).

13. Yibeltal A. Terefe (with Berhe Nerea Kahsay and Semu M. Kassa): New Intervention Model to Eliminate the Spread of Trachoma in Hyper-Endemic Community: Based on a mathematical model, Applied Mathematical Modeling, 90 (2021), 568-581.

14. **Yibeltal A. Terefe** (with Semu M. Kassa and H. J. Njagrah): Modelling Covid-19 mitigation and control strategies in the presence of migration and vaccination: The case of South Africa. Afrika Matematika.

2.2 Chapter in a book

Lubuma J, Mureithi E and **Terefe Y; Nonstandard** discretizations of the SIS epidemiological model with and without diffusion. In: A Gumel (editor), *Mathematics of Discrete and Continuous Dynamical Systems, AMS Contemporary Mathematics book series. Volume in honour of Ronald E Mickens' 70th birthday*, American Mathematical Society 2014, Vol 618, pp 113-132, ISBN: 978-0-8218-9862-8, 978-1-4704-1686-7.

2.3 Published full-length conference paper

Lubuma JM-S, Mureithi EW, **Terefe Y**; Analysis and dynamically consistent numerical schemes for the SIS model and related reaction diffusion equation. In CI Christov and MD Todorov (eds), Application of Mathematics in Techniqual and Natural Sciences (Albena, Bulgaria), 20-25 June 2011, American institute of Physics- AIP Conference proceedings, 1404, pp 168-175.

5.4. Other research works (Under review)

- 1. Impact of the WHO integrated stewardship policy on the control of methicillin-resistant Staphyloccus aureus and third-generation cephalosporin-resistant Escherichia coli: using a mathematical modeling approach.
- 2. Analysis of war and conflict effect on the transmission dynamics of the tenth.
- 3. A nonstandard finite difference scheme for the SIS-integro-differential equation model (with Prof Lubuma).

2.4 Teamwork and collaboration with others

 With T. A. Batubenge (UNISA), I. C. Oguoma (UFS), and B. Tsanou (UP): Mathematical modeling and analysis of TB and HIV co-infections. Some results obtained are reported in SAMS 57th Conference at UNISA and the project is in progress.

3 OTHER SCHOLARLY RESEARCH-BASED CONTRIBUTIONS

3.1 **Participation in conferences, workshops and short courses**

National Conferences

- 1. Attended 2018 October Workshop on Trends in Modeling and Analysis in Life Sciences from 4 to 6 October 2018 at Amanzingwe Conference and Lodge, Hosted by Department of Mathematics and Applied Mathematics, University of Pretoria, South Africa.
- 2. Attended the joint UNISA and University of Pretoria third workshop on Theoretical and Mathematical Epidemiology from 27 February 5 March 2016.
- 3. Participated in the 39th Symposium of Numerical and Applied Mathematics SANUM which took place at the University of Pretoria from 30 March 1 April 2015.
- 4. Attended the joint UNISA and University of Pretoria second workshop on Theoretical and Mathematical Epidemiology from 28 February 7 March 2015.
- 5. *Mathematical Modelling and Analysis of TB and HIV Co-infections*, the South Africa Mathematical Society 57th Annual Congress from October 29 31, 2014, UNISA, South Africa.
- 6. Participated in the 20 Years of Democracy Symposium hosted by CoE Mass, University of Witwatersrand, Johannesburg, 12-13 September 2014.
- 7. Attended the joint UNISA and University of Pretoria first workshop on Theoretical and Mathematical Epidemiology from 3-8 March 2014.
- Analysis and Dynamically Consistent Numerical Scheme for a rabies model in humans and dogs, the Congress of South Africa Mathematical Society 55th Annual congress from 30 October – 02 November 2012.
- 9. On the SIS model for the spatial spread of an epidemic, the South Africa Mathematical Society 53rd Annual congress from November 3-5, 2010, UP. I got price for best presentation among MSc. Students.
- Participated in the second Mathematical Epidemiology workshop from 26 April 3 May 2010 organized by Department of Mathematics and Applied Mathematics, University of Pretoria.
- 11. Attended the distance Education material development training workshop Organized and Conducted by Educational Media Agency in Collaboration with USAID, BESO, UNICEF, the British Council, IICB-UNESCO and SIDA from 31 January - 23 February , 2000.
- 12. Participated from time to time in the Department's Biomath coffee seminar series.

International Conferences

- 1. Presented a talk with title "Mathematical modelling analysis of COVID-19" at BIOMATH 2021, International Conference, June 2021, University of Pretoria, South Africa.
- 2. Attended the Southern Africa Mathematical Sciences Association (SAMSA) 2018 Conference which took place in Palapye, Botswana from 19 to 22 November 2018 and gave

talk on a title "A mathematical model for melioidosis transmission dynamics".

- Attended the 11th European Conference on Mathematical and Theoretical Biology (ECMTB 2018) which took place in Lisbon, Portugal from 23 to 27 July 2018 and gave talk on a title "Mathematics of a sex-structured model for Trichomoniasis transmission dynamics".
- 4. A mathematical model for Ebola epidemic with self-protection measures was the title of my talk at BIOMATH 2017 international conference from June 25-30, 2017, Skukuza Camp, Kruger Park, South Africa.
- 5. Presented a poster in the Conference Frontiers in Applied and Computational Mathematics (FACM) 2016, in Newark, New Jersey, USA, from June 3-4, 2016.
- 6. Mathematical modelling and analysis of cannabis epidemic in a South Africa Province was the title of our presentation at Biomath Satellite Conference from 13-17 July 2015 in University of Pretoria, South Africa, as part of the established multidisciplinary BIOMATH Conference in Bulgaria.
- 7. Nonstandard schemes for diffusion and non-diffusion models: Contributions to constructive treatment of SIS-type models I, BIOMATH 2014 international conference from June 23-27, 2014, Sofia, Bulgaria. I got certificate for best presentation.
- 8. Analysis and Dynamically Consistent Numerical Scheme for a General SIR Model epidemic, Joint Congress of South Africa and American Mathematical Society 54th annual congress from 29 November 2- 3 December 2011, Port Elizabeth, South Africa.
- 9. Attended the workshop with title "DIMACS/MBI US African Biomathematics Initiative: Advanced Study Institute on Conservation Biology Part II from January 10 - 15, 2011. The Advanced Study Institute will be held at Kenya Wildlife Service Training Institute, Naivasha, Kenya" and presented poster with title "On the SIS model for the spatial spread of an epidemic".
- 10. Participated in the workshop with School Program on "**Partial Differential Equations and Analysis on Singular Spaces**" hosted by the Hausdorff Centre for Mathematics HCM) and the Max- Planck Institute for Mathematics (MPIM) in Bonn, Germany from February 11-15, 2008.
- 11. Participated in the international workshop on **Modelling** held from October 22 29, 2004 by DAAD network in Addis Ababa University, Department of Mathematics.

3.2 Membership in national and international bodies

- 1. SAMS: South African Mathematical Society. (Member: 2010 present)
- 2. SIAM: Society for Industrial and Applied Mathematics. (Member: 2014– present)
- **3.** EMS: Ethiopian Mathematical Society. (Member: 2002–present)

3.3 Visit to overseas university as guest researcher

- 1. Research visitor in Brunel University, West London, UK, from 08 June, 2008 to 07 July 2008 on "Analysis of Boundary-Domain Integral Equation for a mixed boundary value problem with matrix coefficients".
- 2. Research visit to University of Arizona from June 5-11, 2016. Arizona, USA.

4 MANAGEMENT AND ADMINISTRATIVE DUTIES

4.1 **Departmental and Faculty Activities**

- 1. A Chairman for staff evaluation committee from 2004 to 2007 in the Department of Mathematics, Addis Ababa University, Ethiopia.
- 2. Recorded officer for Continue Education program in Alemaya University from 2000 to 2001, Ethiopia.
- 3. Head-Mathematics Department Aleta Wendo High School, Ethiopia

5 AWARDS AND SCIENTIFIC/SCHOLARLY RECOGNITION

5.1 Research awards and obainting Conference/Workshop funds

- 1. University of Pretoria, Masters and PhD Pilot Programme bursary, 2009 2015.
- 2. The African Mathematics Millennium Science Initiative (AMMSI), research support, Nairobi, Kenya, 2006.
- 3. Received a prize for excellent presentation from masters' students at the 53rd Annual Congress of the South African Mathematical Society, 3-5 November 2010, Pretoria.
- 4. Received a certificate for excellent presentation from PhD students in the BIOMATH 2014 international conference, June 23-27, 2014, Sofia, Bulgaria.
- 5. NRF (Ref. no. KIC180404317473), Conference funding (ECMTB 2018 from 23 to 27 July 2018, Lisbon, Portugal), R20000.00.
- 6. Universities Capacity Development Programme (UCDP) (Ref. no. APP-TDG-255), Conference funding (SAMSA 2018, 19 to 22, November 2018, Palapye, Botswana), R20000.00.

6 **REFEREES**

- 1. **Prof JM-S Lubuma**, e-mail address: jean.lubuma@up.ac.za, Telephone: +2712 420-3201 / +2712 420-2478, Department of Mathematics and Applied Mathematics, University of Pretoria, South Africa.
- Prof Roumen Anguelov (HoD), e-mail address: <u>roumen.anguelov@up.ac.za</u>, Telephone: +2712 420-2874, Department of Mathematics and Applied Mathematics, University of Pretoria, South Africa

3. **Prof Michael Chapwanya**, e-mail address: <u>michael.chapwanya@up.ac.za</u>, Telephone: +2712 420-2837, Department of Mathematics and Applied Mathematics, University of Pretoria, South Africa

- 4. **Prof Eunice Mureithi:** email address: <u>ewambu02@gmail.com</u>, +255 713775365, Head of Department of Mathematics, University of Darees Salaam, Tanzania.
- 5. **Dr Haileyesus Getahun, email: <u>getahunh@who.it</u>, Director of AMR Global Coordination at WHO.**