



CURRICULUM VITAE

NAME: Michael Edmund Okoya Oduor

DATE OF BIRTH: 19th September, 1949

PLACE OF BIRTH: Siaya

NATIONALITY: Kenyan

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WORK PLACE: Department of Pure and Applied mathematics, Jaramogi Oginga Odinga University of Science and Technology

Workplace Telephone: 057-2501804

MARITAL STATUS: Married

DUTIES/ POSITIONS: Chairman, Department of Pure and Applied mathematics (September 2013-to July 2019)

CURRENT POSITION: Associate Professor of Applied mathematics from September 2014 to date

ACADEMIC RECORD

1. **PhD** 2005, Maseno University (Kenya)
2. **Certificate** 1990, London University (UK) (Distance Education Teaching Course)
3. **MSc** 1986, Reading University (U.K)
4. **Diploma** 1985, Leicester Polytechnic (U.K)
5. **BSc** 1976, University of Nairobi(Kenya)
6. **E.A.A.C.E** 1971 Homa Bay High School (Kenya)
7. **E.A.C.E** 1969 Ambira Secondary School (Kenya)
8. **K.C.P.E** 1965 Yenga Primary School (Kenya)

REFEREES

1. Professor John Ogonji Agure School of Mathematics and Actuarial Sciences
Maseno University
Private bag Maseno
Email: johnagure@yahoo.com
Professor Shem Aywa,
Kibabii University,
P. O. Box 1699-50200,
Bungoma, Kenya.
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Professor Silas Nyabwala Onyango, School of School of Graduate Studies
KCA, Thika Road, Ruaraka
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SOCIAL INTERESTS

Church music, Church development and Organization.

WORK EXPERIENCE:

1989 Assistant Lecturer (University of Nairobi-Kenya)
1990 Lecturer (Maseno University -Kenya)
2009 Senior Lecturer [April,2009](Maseno University -Kenya)
2011 Senior lecturer [September,2011 to June,2014]Jaramogi Oginga Odinga University of
Science and Technology -Kenya
2013 Chairman, Department of Pure and Applied mathematics (September to date) **PF:0218**
2014 Associate Professor Department of Pure and Applied mathematics .

TEACHING EXPERIENCE:

Undergraduate Level

Calculus, Linear Algebra, Probability and Statistics, Sampling Theory, Distribution Theory and
Numerical Analysis, Fourier Analysis, Complex Analysis and, Differential Equations.

Postgraduate Level

Numerical Analysis, Complex Analysis, Differential Equations, Fluid Mechanics, Lie groups and Differential Equations.

Skills Courses Analytic Geometry (2010/2011)

Review Courses

Numerical Analysis (2007/2008), Differential Equations (2009/2010), Finite Difference Methods for Differential Equations (2010/2011)

Teaching Workshops Attended

1. **Effective Teaching:** A Workshop by Professor Odumbe J. (Maseno University, Kenya, September 2008)
2. **Lecturing (e-learning)**—Dr. Betty Ogange (Maseno University, July 2011)

ADMINISTRATIVE EXPERIENCE

University of Nairobi

1. **Coordinator, Mathematics and Economics Books Writing** (Kikuyu Campus-(1988-1990))

Maseno University

1. **Chairman, Department of mathematics** (1993-1995)

Jaramogi Oginga Odinga University of Science and Technology (JOUST)

1. **Chairman, Department of Pure and Applied mathematics** (September 2013- to date)

LEARNED SOCIETIES

1. MACNET Inter-universities Mathematical Societies (2007)

VISITING APPOINTMENTS

1. **January 1990:** Visiting Mathematician (College of Education, London University (UK))

SEMINARS

1. Investigation of the Stability Properties of The Theta (SS11), Newmark and SS22 Methods for Solution of Non-Linear Dynamic Vibration Equations (School of Mathematics and Computing University of Reading, U.K., 1986)
2. Stability analysis of Linear Parabolic Partial Differential Equations (Department of Mathematics and Applied Statistics, Maseno University, Kenya, 1998)
3. Solution of Heat Diffusion Equation (Department of Mathematics and Applied Statistics, Maseno University, Kenya, 1999)

4. Generalized Lie symmetry solution of Burgers equation (Department of Mathematics and Applied Statistics, Maseno University, Kenya, 2005)

PROFESSIONAL SERVICES

1. University External Examiner

(i) Appointment as External Examiner in the Department of Mathematics University of Kabianga, Kenya.
Three academic years with effect from date 24th Nov, 2016

2. Postgraduate Examination

1. Paul Odhiambo - Operator theory. **PhD**(Maseno University, 2009)

BOOK PUBLICATIONS

1. **Analytic geometry: SMA 101** (E-learning) ,2009. [**Maseno University**]

WORKSHOPS ATTENDED

1. Distance-learning workshop at Kisumu-Hotel (July 2009). [**Maseno University**]
2. E-learning subject material development workshop at Eldoret (June/July 2011). [**Maseno University**]
3. National Multiplication Training Part 1 at Midland Hotel ,Nakuru December, 2013
4. National Multiplication Training Part2 at Midland Hotel ,Nakuru June, 2014
5. Role of Deans in University Management at Kogelo Village Resort ,Siaya May, 2014

ACADEMIC RESEARCH INTERESTS

1. Numerical Analysis
2. Lie Groups and Differential Equations
3. Mathematical modeling

POSTGRADUATE STUDENTS SUPERVISION (GRADUATED).

(a) DOCTORAL DEGREES (PhD)

1. Koross Alfred - Numerical Solutions of Nonlinear Parabolic Partial Differential Equations. **PhD**(Maseno University, 2008)

2. Aminer, Titus Jacques Odhiambo - Lie symmetry Solutions of Nonlinear fourth order Ordinary Differential Equations. **PhD** [March, 2014]
[Jaramogi Oginga Odinga University of Science and Technology]

3.B. Otieno Kwach - Mathematical Model for Drug Therapy In Patients With Diabetes Mellitus **PhD** [March, 2014]
[Jaramogi Oginga Odinga University of Science and Technology]

4. Adams Wetoyi- Mathematics of Pesticide Adsorption in a Porous Medium; Convective Transport with steady state water flow in three Dimensions.
[Aug, 2018] PhD
[Maseno University].

7. Kevin Odundo Wambura; Lie Symmetry Analysis of Nonlinear Fourth Order Evolution Equation; PhD, [Dec 2020]
[Jaramogi Oginga Odinga University of Science and Technology]

8. Adenyah Rodgers Khaguli :Lie Symmetry Analysis Of Fourth Order Nonlinear Harmonic Differential Equation PhD [Dec 2019];
[Jaramogi Oginga Odinga University of Science and Technology]

5. George Ochieng Ogongo Numerical Solution of (3+1) Dimensional Advection-Diffusion Equation: A Mathematical Model For Investigating Contaminant Concentration In Aquifer, **PhD [Dec 2020];**
[Jaramogi Oginga Odinga University of Science and Technology]

6. Abel Tinega Kurura. Finite Difference Solution of (2+1)-Dimensional Sine-Gordon Equation: A Model for Investigating the Effects of Varying Surface Damping Parameter on Josephson Current Flowing through the Long Josephson Junction
[Jaramogi Oginga Odinga University of Science and Technology][Dec ,2019]

MASTERS DEGREES (MSc)

1. Aminner, Titus Jacques Odhiambo- Numerical Solutions of Dynamic Vibration Equations.
Successfully defended and graduated with **MSc[2007]** [Maseno University]

2. Joel, Otieno Oman - Numerical Solutions of Korteweg-De Vries Equation.
Successfully defended and graduated with **MSc [2008]**. [Maseno University]

3. Ogol Isaac Okeyo- Numerical Solutions of Wave Equation.
Successfully defended and graduated with **MSc [2010]**. [Maseno University]

4. Amin S.W Yusuf- The Determination Of Coefficients Of The Characteristic Equation Of a
Square Matrix Using Sub Matrices. Successfully defended and graduated with **MSc.[2009]**.
[Masinde Muliro University]

5. Nthiiri Joyce Kagendo- Split Operator method for Parabolic Partial Differential Equations.
Successfully defended and graduated with **MSc [2009]**. [Masinde Muliro University]

6. Duncan Otieno Oganga- Solution Of Third Order Viscous Wave Equation Using, Finite
Difference Method. Successfully defended and graduated with **MSc [2010]**
[Masinde Muliro University]

7. Wabuti Protus Shisia- Finite Difference Method for Burgers Equation.
Successfully defended and graduated with **MSc [2010]**. [Masinde Muliro University]

8. Rodgers Khaguli- Finite Element Method for Burgers Equation with Robbins conditions.
Successfully defended and graduated with **MSc[2011]**. [Masinde Muliro University]

9. Amakobe Hagai James - Finite Element Method Analysis for Beam Equation.
Successfully defended and graduated with **MSc [2011]**.
[Masinde Muliro University]

10.Ochieng' Daniel- Mathematical Model for Rhone-Antelopes

Successfully defended and graduated with **MSc [2011]**. [Maseno University]

11.Henry N. Wati-Effects of computer based Instruction on Mathematics Achievement: A case study of secondary school students of Kakamega South District, Kenya

Successfully defended and graduated with MSc [2011].**[Masinde Muliro University]**

14. Makau J - Electromagnetic Energy radiation using Solar.

MSc[Dec,2013].

[Masinde Muliro University]

POSTGRADUATE STUDENTS SUPERVISION (ON-GOING)

DOCTORAL DEGREES (PhD)

1.Amin S.W Yusuf -Lie Groups Solutions of shallow wave Firth order nonlinear Ordinary Differential Equations. He is currently developing the proposal. Registered for PhD[Aug,2011].**[Jaramogi Oginga Odinga University of Science and Technology]**

2. Justus Kaisa Nyang'acha- Modeling of 2D Macroscopic Motor Vehicle Traffic Flow Model Currently he is at advance stage solving the thesis. Registered for PhD[Aug,2014].**[Jaramogi Oginga Odinga University of Science and Technology]**

PUBLICATIONS

Full length articles in specialist journals and refereed conference proceedings

1. Wood. L and Oduor Okoya, M.E - *The stability properties of some algorithms for the Solution of Dynamic vibration equation*- Communication in applied numerical methods Journal of Vol.4 (1988) pg205-212
2. Oduor Okoya, M.E - *Investigation of the Instability properties of the Theta (SS11), Newark and SS22 methods for Solution of non-linear dynamic Vibration Equations.* MSc thesis September, 1986. University of Reading, U.K
3. Oduor Okoya M.E -*Lie symmetry solutions of the Generalized Burgers Equation.* **PhD** Thesis Dec, 2005. Maseno University
4. Omolo Ongati. N and Oduor Okoya, M.E- *Symmetry group methods for solution of Generalized Heat Equation: $u_t = \lambda u_{xx}$* Maseno University Journal of Education and Science ISSN:1019-360X Vol.2 No.2 September,2006 pg78-90
5. Alfred Koross, Jacob Bitok, Oduor Okoya and Omolo Ongati. N.-*Explicit Hybrid Finite Difference Schemes from Operator Splitting For solving Korteweg-De Vries Equation.* Journal of Mathematical Sciences Vol.19 No 2(2008) pg.171-178.International Centre for Advance Studies Nabadhoi School Para,Dattapukur, North 24 Prgs.,West Bengal 743248,India
6. Alfred Koross, Stanley Chepkwony, Oduor Okoya and Omolo Ongati. N.-*Implicit Finite Difference Methods Arising from Operator Splitting For solving 1-D Heat Equation.* Journal of Mathematical Sciences Vol.20 No1(July,2009) pg.75-82.International Centre for Advance Studies Nabadhoi School Para, Dattapukur, North 24 Prgs.,West Bengal 743248,India
7. A. Koross, OduorOkoya and O. Ongati. N.-*An Explicit Operator Splitting Method For solving 1-D Modified Burgers' Equation.* Botswana Journal of Technology Vol.18 No 2(October,2009) pg.19-21.Chemical Abstracts and AJOL. ISSN 1019-1593
8. **Omolo Ongati. N and Oduor Okoya, M.E-** Stability Analysis of Numerical Solution of of Evolutionary Partial Differential Equations. *Journal of Science Technology Education and*

Management. (**J-STEM**)Vol.3 No 1&2(Septeber,2010) pg.16-25. Masinde Muliro University of Technology. ISSN 1991-2889

9. **T.J.O Aminner, N.B Okelo, N .Omolo Ongati and M. Okoya Oduor** - Numerical solution dynamic vibration equations. *International Journal of Mathematical Archive-2(9), 2011, page:1489-1494 ISSN2229-5046*

10. **Oduor Michael E. O and Nthiiri Joyce Kagendo** - Split Operator Method for Parabolic Partial Differential Equation .*Applied Mathematical Sciences, Journal for Theory and Applications, Vol. 6, no. 51, 2519 – 2526, 2012. ISSN 1312-885X*

11. M.E. Oduor Okoya, N. Omolo Ongati, T. J. O. Aminer and J. Nyakinda Otula;
Symmetry Group Approach to the solution of Generalized Burgers Equation: $u_t + uu_x = \lambda u_{xx}$

*Applied Mathematical Sciences, Journal for Theory and Applications, Vol. 7, no. 13-16, 2013
ISSN 1312-885X*

12. B. Otieno Kwach ,Omolo Ongati , M. Oduor Okoya and Amos Otedo - *Mathematical Model for Drug Therapy In Patients With Diabetes Mellitus
International Journal of Engineering, Science and Mathematics Volume 2, Issue 1, March, 2013
ISSN: 2320-0294*

13. Oduor Michael E. Okoya, T. J. O. Aminer, Hagai Amakobe James and Nthiiri Joyce Kagendo- *Finite Element Approach to the Solution of Fourth order Beam Equation:*
 $u_{tt} + c^2 u_{xxxx} = f(x, t)$.

*International Journal of Engineering, Science and Mathematics (IJESM)Volume 2, Issue 2
June,2013ISSN: 2320-0294*

14. Rodgers K.Adenyah ,Michael O. Okoya, Shem O. Aywa, Duncan O. Oganga
-*Mixed Galerkin Finite Element Solution of the Homogeneous Burgers Equation:*
*International Journal of Engineering and Scientific Research (IJESR)Volume 3, Issue 2
February, 2015 ISSN: 2347-6532*

15. Rodgers K. Adenyah ,Titus J.O. Aminer , Oduor, Okoya M: *Lie symmetry Analysis of Fourth order Nonlinear ordinary differential Equation as a case study.* *International Journal of Engineering & Scientific Research* <http://www.ijmra.us> 65 June 2016;
IJESR Volume 4, Issue 6 ISSN: 2347-6532

16. Rodgers K. Adenyah ,Titus J.O. Aminer ,Oduor M. Okoya; *Use of Infinitesimal Transformations in obtaining the Generator of a harmonic fourth order non-linear ordinary differential equation*
: International Journal of Engineering& Scientific Research, Vol.5 Issue 5, May 2017,ISSN: 2347-6532 Impact Factor: 6.660
17. Rodgers K. Adenyah1, Titus J.O. Aminer and Oduor M. Okoya :*Lie Symmetry Solution of Fourth Order Ordinary Differential Equation*. INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY SCIENCES AND ENGINEERING, VOL. 8, NO. 6, OCTOBER 2017[ISSN: 2045-7057]
18. Tinega Abel Kurura, Oduor Okoya & Omolo Ongati: *Investigation of the Effects of Varying Junction Penetration Depth on Current Density Flowing through the Long Josephson Junction*. The SIJ Transactions on Computer Networks & Communication Engineering (CNCE), Vol. 4, No. 3, December 2016
19. Kevin. O. Wambura. J. O. Aminer, and M. E. Oduor Okoya-
Solution of Parabolic Partial Differential Equation of the form $u_t = u_{xx} + f(x,t)u$ using Lie Symmetry Analysis
International Journal of Scientific Engineering and Applied Science (IJSEAS) - Volume-1, Issue-9, December 2015 ISSN: 2395-3470
20. J. O. Aminer, N. Omolo Ongati and M. E. Oduor Okoya; *Lie Symmetry Solution of Fourth Order Nonlinear Ordinary Differential Equation: $(yy'(y(y')-1))''=0$*
International Journal Of Multidisciplinary Sciences And Engineering, Vol. 7, No. 4, May 2016
ISSN: 2045-7057
21. Tinega Abel Kurura, Oduor Okoya, Omolo Ongati; *Finite Difference Solution of $(2+1)$ -Dimensional Sine-Gordon Equation: A Model for Investigating the Effects of Varying Surface Damping Parameter on Josephson Current Flowing through the Long Josephson Junction*
.International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Index Copernicus Value (2015): 78.96 | Impact Factor (2015): 6.391
22. Tinega Abel Kurura, Oduor Okoya, & Omolo Ongati; *Investigation of the Effects of Varying Junction Penetration Depth on Current Density Flowing through the Long Josephson Junction*. The SIJ Transactions on Computer Networks & Communication Engineering (CNCE), Vol. 4, No. 3, December 2016
23. Kevin. O. Wambura, M. E. Oduor Okoya, T. J. O. Aminer :
Lie Symmetry Analysis and the Exact Analytic Solutions of Nonlinear Fourth Order Evolution Equation. The SIJ Transactions on Computer Networks & Communication Engineering (CNCE), Vol. 4, No. 3, December 2016 ISSN: 2321-2403 © 2016

24..Kevin. O. Wambura, M. E. Oduor Okoya and T. J. O. Aminers³; *Lie Symmetry Analysis and the Optimal System of Nonlinear Fourth Order Evolution Equation*. International Journal of Scientific Engineering and Applied Science (IJSEAS) – Volume-3, Issue-3, March 2019;ISSN: 2395-3470

26. Justus Kaisa Nyang'acha¹, Prof. Oduor Okoya, Prof. Naftal Omolo Ongati; *Solutions of the 2D Macroscopic Motor Vehicle Traffic Flow Model* International Journal of Science and Research (IJSR) ISSN: 2319-7064 Research Gate Impact Factor (2018): 0.28 | SJIF (2018): 7.426 Volume 8 Issue 12, December 2019 www.ijsr.net Licensed Under Creative Commons Attribution CC BY

27. Justus Kaisa Nyang'acha¹, Prof. Oduor Okoya Prof. Naftali Omolo Ongati³; *Modeling of The Lane Changing Motor Vehicle Traffic On Roads with Two Lanes* International Journal of Scientific and Research Publications, Volume 9, Issue 12, December 2019 570 ISSN 2250-3153 <http://dx.doi.org/10.29322/IJSRP.9.12.2019.p9671> www.ijsrp.org

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