

CURRICULUM VITAE

1. BIODATA AND CONTACT

- **Name:** WANDERA OGANA
- **Current Position:** Professor of Mathematics, University of Nairobi
- **Place of Birth:** Mukhobola, Bunyala South, Busia District, Kenya
- **Citizenship:** Kenyan
- **Marital Status:** Married with four children
- **Mailing Address:** Department of Mathematics, University of Nairobi,
P.O. Box 30197, GPO 00100, Nairobi, Kenya.
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2. EDUCATION

- Ph.D (Applied Mechanics), Stanford University, Stanford, California, U.S.A., 1975.
- M.Sc. (Applied Mechanics), Stanford University, Stanford, California, U.S.A., 1973.
- B.Sc. (Mathematics), University of East Africa, Nairobi, Kenya, 1970.

3. EMPLOYMENT AND APPOINTMENTS

3.1 Academic Positions

- Professor of Mathematics, Department of Mathematics, University of Nairobi, Kenya; from 1991.
- Associate Professor, Department of Mathematics, University of Nairobi, Kenya; 1987 - 1991.
- Senior Lecturer, Department of Mathematics, University of Nairobi, Kenya; 1980 - 1987.
- Lecturer, Department of Mathematics, University of Nairobi, Kenya; 1977 - 1980.
- Teacher of Mathematics, Maseno Secondary School, Maseno, Kenya; 1970 - 1971.

3.2 Administrative Positions

- Dean, Faculty of Science, University of Nairobi; 1995 - 2000.
- Chairman, Department of Mathematics, University of Nairobi, Kenya; 1983 - 1992.

3.3 Postdoctoral and Visiting Positions

- Visiting Professor at The Ohio State University, Columbus, Ohio; March to September 2005.
- Visiting Research Scientist in the School of Computational and Applied Mathematics, University of the Witwatersrand, South Africa; September to November 2001.
- Visiting Research Scientist at the Potsdam Institute for Climate Impact Research (PIK); May to August 2000.

- START Visiting Scientist at GAIM Project Office, University of New Hampshire and at the National Centre for Atmospheric Research (NCAR) in Boulder Colorado, U.S.A; 12 June - 30 July 1996.
- Visiting Scientist, Livestock Pests Research Programme, The International Centre of Insect Physiology & Ecology (ICIPE), Nairobi, Kenya; September 1993 - December 1994.
- Visiting Research Scientist, Long Term Visiting Mathematicians Programme, International Centre for Theoretical Physics, Trieste, Italy; February 1986 - August 1986.
- Postdoctoral Research Associate, NASA Ames Research Center, California, USA; January 1976 - July 1977.

4. ACADEMIC ACTIVITIES

4.1 Fields of Research Interest

- Applied mathematics
- Computational Fluid Mechanics
- Mathematical modelling

4.2 Supervision of Doctor of Philosophy Theses

- Wasike, Adu A. M. “An Analytical and Numerical Study of a System of Coupled Oscillators with a Time Lag in the Coupling”; Ph.D, 1997, Department of Mathematics, University of Nairobi.
- Manyonge, Alfred W. “Mathematical Modelling of the Olkaria Geothermal Reservoir”; Ph.D, 1997; Department of Mathematics, University of Nairobi.
- Ojiambo, Bwire Sebastian “Characterization of Subsurface Outflow from a Closed-Basin Freshwater Tropical Lake, Rift Valley, Kenya”; Ph.D, 1996; Graduate Program of Hydrologic Sciences, University of Nevada, Reno, USA

4.3 Supervision of Master of Science Dissertations

- Adongo, Donald O. “Groundwater Modelling Using Finite Difference Methods”, University of Nairobi, 1992.
- Iyaya, Charles C. W. “Finite Element Method Applied to Some Boundary Value Problems”, University of Nairobi, 1992.
- Manyonge, Alfred W. “Geothermal Reservoir Modelling”, University of Nairobi, 1989.
- Nalyanya, Anthony N. A. “Mathematical Modelling in Fisheries Management”, University of Nairobi, 1989.
- Owinoh, Anthony Z. “Mathematical Modelling of Air Pollution”, University of Nairobi, 1989.
- Wasike, Adu A. M. “Numerical Computation of Periodic Solutions of a Second Order Ordinary Differential Equation by Finite Difference Methods, University of Nairobi, 1988.
- Gathogo, Kariuki T. “Mathematical Modelling of Blood Flow in Arteries, University of Nairobi, 1982.

- Ondik, Joseph O. “The Methods of Flood Prediction”, University of Nairobi, 1980.

4.4 External Examinership

- External Examiner in Applied Mathematics, Jomo Kenyatta University of Agriculture and Technology, Juja, Kenya, 1997/98 and 1989/90 - 1991/92..
- External Examiner in Mathematics, The National University of Lesotho, Roma, Lesotho; 1992/93 - 1993/94.
- External Examiner in Postgraduate Applied Mathematics, Egerton University, Njoro, Kenya; 1992/93 -1993/94.
- External Examiner in Undergraduate Applied Mathematics, Egerton University, Njoro, Kenya; 1988/89 - 1990/91.
- External Examiner in Applied Mathematics, Kenyatta University, Nairobi, Kenya; 1987/88 - 1989/90.
- External Examiner in Mathematics, University of Addis Ababa, Addis Ababa, Ethiopia; 1985.
- External Examiner in Mathematics, University of Zimbabwe, Harare, Zimbabwe; 1984/85 - 1986/87.
- External Examiner in Applied Mathematics, University of Dar-es-Salaam, Dar-es-Salaam, Tanzania; 1981/82 - 1983/84.
- Examiner in Mathematics for the Kenya Advanced Certificate of Education; 1978 - 1981.

5. SOCIETIES AND ACADEMIES

- Member of the Executive Committee, African Mathematical Union; from September 1995.
- Fellow, Kenya National Academy of Sciences; from 1994.
- Honorary Secretary, Kenya National Academy of Sciences; 1992 - 2002.
- Member, International Society for Boundary Elements; from 1989.
- Chairman, Kenya Mathematical Society; 1988 - 1996.
- Full Member, Kenya Mathematical Society, from 1988.
- Member, Writers Association of Kenya; from 1988.
- Member, International Society for Computational Methods in Engineering (ISCME), U.K.; 1986 - 1992.
- Member, Kenya National Academy of Sciences; 1986 - 1994.
- Member, American Institute of Aeronautics and Astronautics; from 1977.
- Member, SIGMA XI; from 1976.

6. FELLOWSHIPS AND AWARDS

- The Clay Mathematics Fellowship as a Visiting Professor at The Ohio State University, Columbus, Ohio; March to September 2005.
- UNESCO ROSTA (Regional Office for Science and Technology in Africa) Fellowship (with accommodation funding from the University of the Witwatersrand) for Visiting Research Scientist in the School of Computational and Applied Mathematics, University of the Witwatersrand, South Africa; 21 September – 4 November 2001.

- Deutscher Akademischer Austauschdienst (DAAD) Fellowship for Study Visit to Potsdam Institute for Climate Impact Research (PIK), 23 May - 16 Aug 2000.
- START Visiting Scientist Fellowship at GAIM Project Office, University of New Hampshire and at the National Centre for Atmospheric Research (NCAR) in Boulder Colorado, U.S.A; 12 June - 30 July 1996.
- Long Term Visiting Mathematicians Fellowship; International Centre for Theoretical Physics, Trieste, Italy; Feb to Aug 1986.
- Associate Member, International Centre for Theoretical Physics, Trieste, Italy; 1982.
- Postdoctoral Research Associate, NASA Ames Research Center, California, USA; January 1976 - July 1977.
- Rockefeller Foundation Scholarship for Ph.D studies at Stanford University, Stanford, California, U.S.A.; 1971 -1975.

7. COMMITTEES, BOARDS AND TEAMS

7.1 International

- Member, Scientific Committee on Problems of the Environment (SCOPE); from February 2005.
- Programme Director, African Mathematics Millennium Science Initiative (AMMSI); from October 2004.
- Chair of the Writing Group of the African Mathematics Millennium Science Initiative (AMMSI); December 2002- December 2003.
- Member of the Global Analysis Interpretation and Modelling (GAIM) Task Force of the International Geosphere-Biosphere Programme (IGBP); 2001 - 2005.
- Member of the Scientific Committee of the International Geosphere-Biosphere Programme (SC-IGBP); 1999 - 2004.
- Member of the Working Group I for the Third Assessment Report (TAR) of the Intergovernmental Panel on Climate Change (IPCC), as one of the lead authors in Chapter 8: Model Evaluation; 1998-2000.
- Member of a team of lead authors commissioned to prepare the IPCC Technical Paper III on "Stabilization of Greenhouse Gases: Physical, Biological and Socio-Economic Implications", for the Intergovernmental Panel on Climate Change (IPCC); 1996-1997.
- Chair, PACOM (Pan-African Committee for START); 1996-2000.
- Member of the Executive Committee, African Mathematical Union; 1995-2000.
- Member of the African Mathematical Union Commission on Pan African Mathematics Olympiad; 1986 -1991.

7.2 National

- Member, Board of Governors, Kenya Science Teachers College; 1998 - 2000.
- Member of the Kenya team for the UNDP/GEF Project on Capacity Building in Sub-Saharan Africa to respond to the United Nations Framework Convention on Climate Change (UNFCCC); 1997-1998.
- Member of the Physical Sciences Specialist Committee of the National Council for Science and Technology; from 1994.
- Member of the National Council for Science and Technology (NCST) Task Force on Space Science and Technology Policy; 1990.

W. Ogana

- Resource Person in Mathematics for the Curriculum Committee of the Commission for Higher Education, Kenya; from March 1990.
- Member of the Review Team of the Biomathematics Research Unit of the International Centre of Insect Physiology and Ecology (ICIPE) Nairobi, Kenya; November 1989.
- Member of the Energy Policy and Resources Specialist Committee of the National Council for Science and Technology; 1987 - 1989.
- Member of the Steering Committee for San Marco Satellite Launching and Tracking Facility; 1986 - 1993.
- Member of the Physical Sciences specialist Committee of the Kenya National Academy of Sciences; 1984 - 1992.
- Member of the Biological and Physical sciences Specialist Committee of the National Council for Science and Technology; 1984 - 1994.
- Member of the Secondary School Mathematics Panel for the Kenya National examinations Council; 1980.

8. LIST OF PUBLICATIONS

(A) LATEST FIVE REFEREED SCIENTIFIC PUBLICATIONS

1. Ogana, W., M. J. Ntiba and W. M. Kudoja (2004). Assessment of the potential impact of climate change on fisheries in Lake Victoria using the predictor rule. In: *Importance of Mathematical Modelling in Biological and Biomedical Processes*. Luboobi, L.S., J.Y.T. Mugisha and J. Kasozi, Eds.: African Society for Biomathematics Series No. 1, Makerere University Press, Kampala, Uganda, pp. 139 – 148.
2. Wasike, A. A. M. and W. Ogana, (2002). Periodic solutions of a system of delay differential equations for a small delay, *Science and Technology*, 7, 295 - 302.
3. McAvaney, B.J., C. Covey, S. Joussaume, V. Kattsov, A. Kitoh, W. Ogana, A.J. Pitman, A.J. Weaver, R.A. Wood, and Z.-C. Zhao (2001). Model evaluation. In: *Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change*. Houghton, J.T., Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden, X. Dai, K. Maskell and C.A. Johnson, Eds., Cambridge University Press, Cambridge, England, pp. 471-523.
4. Schimel, D. S., Grubb, M., Joos, F., Kaufmann, R. K., Moss, R., Ogana, W., Richels, R. and Wigley, T. M. L. (1997). Stabilization of atmospheric greenhouse gases: Physical, biological and socio-economic implications. *IPCC Technical Paper 3*, J. T. Houghton, L. G. Meira Filho, D. J. Griggs and K. Maskell (eds), IPCC, Geneva, Switzerland, 52 pp
5. Ogana, W., (1997). Transonic integro-differential equation method for steady flows, in H. Schmitt (ed.), *Advances in Fluid Mechanics, Volume 11: Flows at Large Reynolds Numbers*, Computational Mechanics Publications, Southampton-Boston, pp. 89-123.

(B) LATEST FIVE OTHER SCIENTIFIC PUBLICATIONS

W. Ogana

1. Griffiths, Phillip A. and Ogana, Wandera (2003). The challenge of strengthening mathematics in Africa, *Notices of the Amer. Math. Soc.*, Vol 50, No.9, pp. 1061.
2. Ogana, W. (2001). The role of mathematics in society, in Y. M. Kohi, C. Alphonse, J.J. Kyaruzi, H. M. Twaakyondo, T. Mtekela and A. S. A. Mshimba (eds), *Proceedings of the International Workshop on Mathematics for Development in Africa, South of the Sahara*, Arusha, Tanzania, 19 – 21 November, 2001, pp. 104 –113.
3. Ogana, W. and Ntiba, M.J., (2000). Potential impact of climate change on fisheries in Lake Victoria and Lake Naivasha. *Book of Proceedings for LV2000: A New Beginning Conference*; May 2000.
4. Ogana, W. (1998). Evaluation of the wind patterns and wind energy characteristics of some meteorological stations in the eastern part of Kenya. Report of a project funded by the Deans Committee, University of Nairobi, and the National Council for Science and Technology, pp.80.
5. Ogana, W., Oyieke, H. and Ntiba, M. J., (1998). Aquatic Resources Sector, in F.M. Mutua and F. K. Karanja (eds), *Climate Change Impacts, Vulnerability and Adaptation in Kenya*, UNDP/GEF Project, RAF/93/G31: Building Capacity in Sub-

(C) LITERARY PUBLICATIONS:

- 1 Ogana, W., (1975). *Days of Glamour*, Kenya Literature Bureau, 2nd Edition(*Collection of short stories*).
- 3 Ogana, W., (1970). *Hand of Chance*, East African Literature Bureau, 2nd Edition. (*Novel*).

9. SCIENTIFIC MEETINGS

I have organized or participated in 70+ National and International scientific meetings