

# **APPLICATION FOR IMU ASSOCIATE MEMBERSHIP-KENYA**

## **1. ADHERING ORGANIZATION**

### **Mathematics Association of Kenya(MAK)**

School of Mathematics

College of Biological and Physical Sciences

University of Nairobi

P.O. Box 30197

00100 Nairobi

EMAIL: [maths@uonbi.ac.ke](mailto:maths@uonbi.ac.ke)/[mathskenya@gmail.com](mailto:mathskenya@gmail.com)

## **2. COMMITTEE OF MATHEMATICS**

### **Mathematics Association of Kenya (MAK)**

Prof. John Okoth Owino, chairman

School of Mathematics

University of Nairobi

P.O. Box 30197

00100 Nairobi

EMAIL: [owino@uonbi.ac.ke](mailto:owino@uonbi.ac.ke)

### **3. MATHEMATICS SOCIETIES AND ORGANIZATIONS**

<b>SOCIETIES/ ORGANIZATIONS</b>	<b>MEMBERS APPROX.</b>
Mathematics Association of Nairobi University (MANU)	600
Mathematics Association of Kenya	1100
Kenya National Academy of Sciences	150
Nairobi University Statistics Association(NUSA)	55
International Biometry Society Group – Kenya	300
Nairobi Actuarial Students Association(NA'SA)	130

### **4. Activities in Mathematics**

- I. East African Universities Regional Schools in Mathematics by Eastern Africa Universities Mathematics Programme (EAUMP) in conjunction with ICTP and ISP for the years 2004,2005,2006,2007 and 2008.
- II. Annual High School Mathematics contest of Nairobi University (YEARY EVENT)
- III. A number of conferences in mathematics and applications at least Biannually.

### **5. List Of Universities With Significant Research In Mathematics**

- i. University of Nairobi,
- ii. Kenyatta University,
- iii. Jomo Kenyatta University of Agriculture and Technology,
- iv. Egerton University,
- v. Moi University,
- vi. Maseno University,

- vii. Masinde Muliro University,
- viii. Catholic University of East Africa, University of East Africa – Baraton,
- ix. African Nazarene University,
- x. Daystar University,
- xi. United States International University(Nairobi-Kenya)
- xii. Kenya Methodist University,
- xiii. Kereri Women’s University,
- xiv. Kabarak University and
- xv. Strathmore University

There are approximately 22 Research Professors teaching mathematics in different colleges and universities in Kenya,

Kenya has a total of 16 recognized universities of which are public and the rest private. Although in most universities mathematics is taught as a service course for most of the programs offered only the public universities have a well structured mathematics programs that include postgraduate studies which attract significant research.

Due to overwhelming teaching load many PhD holders in various field do not attain the status of professorship, however many are still involved in research in various areas of mathematics. I cite over 70 who are making meaningful contributions in the area of research. It should be noted that research is not yet to the level that it should be, but many institutions of Higher learning are putting down strategies which will uplift this core area for mathematical study.

As an example university of Nairobi is determined to be a premier in the field of research.

Among the notable mathematicians the country considers well known world wide include

- i. Prof Owino John Okoth-Director School of Mathematics, University of Nairobi
- ii. Prof Ganesh P. Pokhariyal –Head Applied and Industrial Mathematics, University of Nairobi
- iii. Prof Wandera Ogana- Professor, School of Mathematics, University of Nairobi
- iv. Prof John Wycliffe Odhiambo - Vice Chancellor, Strathmore University, Kenya
- v. Prof George Saitoti- Minister for Internal Security and Member of Parliament in Kenya, Was also former Vice President of the Republic of Kenya.

#### 6. Mathematical Journals Published in Kenya

- i. East African Journal of Statistics
- ii. Kenyan journal of Science and Technology, has a section for Mathematics research articles in its series
- iii. Discovery and Innovations, has a section for mathematical articles.
- iv. Nairobi Journal of Mathematics , (**New**)

7. The number of Publications that have been produced by mathematicians living in the country in the past 10 years is well more than 300, below is a short list of some of the publications.

#### **Publications**

1. A. M. Achola, N. J. Muthama & J. O. Owino(2006): Influence of Weather on the Insurance Industry in Kenya: - *African J. of Sci. & Technol. Vol. 7, No.,pp 112-120.*

2. J. O. Owino, C. Mwathi, Miheso M. O'Connor, E. Marigi & D. Gitau(2006): Mathematics Teacher Education in Changing Time: Kenyan Case: - *In Proceedings of the International Congress on Mathematics Instruction, ICMI-1, S. Africa.*
3. Owino, J. O. & Bodo, E. O.(2005): Maintainability in a Manpower System: - *East African J. of Stats. Vol.1, No.1, pp 41-48.*
4. Owino J., N. J. Muthama & S. Marigi (2004): "Probability modeling of climate data". - **2004** *J. African Society for Biomathematics, Series1, pp 133 – 137*
5. OWINO J. N. J., MUTHAMA and MARIGI S(2002): "Harmonization of climate outlooks in Africa: Verification of consistencies of user products". - *Journal of the African Meteorological Society, Vol 5.*
6. ODONDI L. & OWINO J. (2000): Population Modeling: *Sustainable optimal harvesting in Fish Farming Discovery & Innovations Vol. 12 (3/4), pp 137-141.*
7. 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*
8. The challenge of strengthening mathematics in Africa - **2003** *Notices of the Amer. Math. Soc., Vol 50, No.9, pp. 1061*
9. Periodic solutions of a system of delay differential equations for a small delay - **2002** *Science and Technology , 7, 295 - 302*
10. 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 - **2001** (*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.*
11. 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, - **2001** *Eds., Cambridge University Press, Cambridge, England,pp. 471-523.*

12. Ogana, W. The role of mathematics in society - **2001** *Proceedings of the International Workshop on Mathematics for Development in Africa, South of the Sahara, Arusha, Tanzania*
13. 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.*
14. Ogana, W. (1999) Modelling the vertical distribution of tsetse flies (Diptera: Glossinidae ) from Trap Catches: Mpanga Ranch, Rwanda - *Proceedings of the Fifth scientific conference of the East, Central & Southern Africa Network of the International Biometric Society , Nairobi, Kenya, pp. 89-93*
15. Model for understanding social problems in slums - **2005** *International journal for world peace Vol. XXII No. 2 , pp 59-75*
16. Global Knowledge and the Information Society: Illusion or Reality for Developing Countries? – **2004** *International ICT Workshop 2004 On Application of ICT in enhancing Higher Learning Education, pp 8-19..*
17. G.P. Pokhariyal, C.A. Moturi, J. Hasssanali S.M. Kinyanjui Simulation Model for Dental Arch Shapes in Humans, " East African Medical Journal 81 (2004), 599-602 (2004)) - *East African Medical Journal, November 2004, pp 599 – 602.*
18. G.P. Pokhariyal, C.A. Moturi, J. Hasssanali S.M. Kinyanjui Simulation Model for Dental Arch Shapes in Humans, " East African Medical Journal 81, 599-602 (2004)) – **2004** *East African Medical Journal, pp 599 – 602.*
19. Strategic Measures to curb Crime Rates in Nairobi - **2003** *International Jour. on World Peace, with R.K. Muthuri*
20. On Emperical Modeling of HIV/AIDS pandemic with application to East Africa - **2003** *African Jour. Sci &Tech, vol. 4, No.1, pp104-109, with R.O.Simwa*
21. R. O. Simwa (**2003**) A dynamical Model for stage-specific HIV Incidences with Application to Sub-Saharan Africa - *Applied Maths and Computation, 146 pp93-104, with R.O.Simwa*

22. Modeling Environmental, Epidemiological and Social Influences of Urbanization - **2000** *23rd Conference on Regional and urban statistics and Research, 12th - 15th June, Lisbon, PORTUGAL; Proceeding of conference (CD)*
23. Crop Development Model – **2002** *Applied sciences, vol. 4, No.1, pp 11-16.*
24. Curvature tensors on A-Einstein Sasakian Manifold – **2001** *Balkan John. Of Geom. & its applications vol.6, No.1*
25. Mathematics and Science for Industrial Development - **2000** *Computer Age, pp. 6-8*
26. Physical Properties of some Curvature Tensors – **1998** *Kenya Jour. of Sci.Ser A.*
27. On Quasiaffinity and Quasiaffine inverses of partial isometries - **2000** *Bulletin of the Allahabad Mathematical Society Vol. 15 35-40.*
28. On Quasiaffinity and Quasiaffine inverses of partial isometries - **2000** *Bulletin of the Allahabad Mathematical Society Vol. 15 35-40.*
29. Manene, M.M. and Mwangi A.K. (2005) Group Screening Designs a comparative approach. *International Journal of Biochemi Physics Vol. 14 Nos 1 & 2, 49 – 53.* – **2005** *International Journal of Biochemi Physics Vol. 14 Nos 1 & 2, 49 – 53.*
30. Manene M. M. (2005) Multi-type stepwise group screening designs with unequal a-priori probabilities. *East African Journal of statistics Vol.1, No. 1 49-67*
31. Manene M. M and Simwa R. O. (2004). The performance of one type step-wise group screening designs *Indian Journal of Mathematics Vol. 46, No. 2-3, 303-321.* – **2004** *The performance of one type step-wise group screening designs Indian Journal of Mathematics Vol. 46, No. 2-3, 303-321.*
32. Manene, M. M. (2003) Step-Wise Group Screening Designs with unequal A-priori probabilities and errors in observations; *Sultan Qaboos University Journal of Science and Technology, 8, 153 – 165.* *Sultan Qaboos University Journal of Science and Technology, 8, 153 – 165.*
33. Manene, M. M., A. M. Rotich and R. O. Simwa (2002) on Multi-type Step-Wise Group Screening Designs; *Bulletin of the Allahabad Mathematical Society Vol. 17, 59 – 78.* - *Bulletin of the Allahabad Mathematical Society Vol. 17, 59 – 78.*
34. A.A.M. Wasike, N. R.Ndungu., G.P. Pokhariyal (2001) Global asymptotic behaviour of Aquatic Vegetation in a system with periodic Nutrient supply, *African journal of science ant Technology (AJST) Vol. 7 No.4 (2006), 41-50*

35. A. A. M. Wasike: Synchronization and Oscillator death in diffusively coupled lattice oscillators. - **2003** *International Journal of Mathematical Sciences Vol. 2 No. 1 (2003)*, 67-82
36. A. A. M. Wasike, W. Ogana (2003) Periodic solutions of a system of delay differential equations for a small delay. *Journal of Science Research – Science and Technology Vol. 7 No. 2 (2002)*.332-342
37. A. A. M. Wasike: Periodic solutions of systems of delay differential equations. – **2002** *Indian Journal of Mathematics Vol. 44 No. 1 95-117 (2002)*.
38. Gachii M. K. (**2003**) Generalised Deletion Designs –*African Journal of Science and Technology, Volume 4 Number 2*
39. M.K. Gachii and J.W.Odhiambo – **2002** Deletion Designs *Journal of Science and Technology, 7, , 323- 332*,
40. M.K. Gachii **1998** Asymmetrical Single Replicate Designs -*South African Statistical Journal*
41. On Statistical modelling of Floods and Drought Insurance products in Developing Countries – **2006** *Advances and Applications Statistics. Vol.6, Issue No.2 ,pg 241-248*
42. A model for the CD4 cell counts in an HIV/AIDs patient and its Application in Treatment Interventions – **2005** *American Journal of Infections Diseases Vol. 1, Issue No. 1, page 61-65*
43. A model For HIV Infection and its Application - **2004** *Far East Journal of Applied Mathematics Vol. 16, Issue No. 2, pg 151- 160*
44. A.dynamical model for stage-specific HIV incidences with application to sub-Saharan Africa – **2003** *Journal of Applied Mathematics and Computation Vol. 146, page*
45. On Emperical Modeling of HIV/AIDS pandemic with application to East Africa - **2003** *African Jour. Sci &Tech, vol. 4, No.1, pp104-109, with R.O.Simwa*
46. Linearly representable nonstationary sequences in Hilbert Spaces – **2004** *International Journal of BioChemiPhysics, Vol. 13, No.2*
47. Computations of infinitesimal structural function of a linearly representable random increment with the aid of complete dissipative and triangular models of operators in Hilbert Spaces – **2003** *International Journal of BioChemiPhysics. Vol 11&12 No.3*



48. Survey of predatory mites in the Kingdom of Lesotho (Africa): Notes on altitudinal preference of predatory mites and description of a new species (Acari: Phytoseiidae) - **2002** *Internat. J. Acarology*, 27: 241-244.
49. Monograph On linear transformation of curves in Hilbert Spaces and covariance theory of stationary stochastic functions - **2001-2002** *In the process of publication*
50. Bukusi E.A., Cohen C.R. , Meier A. S., Waiyaki P.G., Nguti R., Njeri J., Holmes K.K. (2006), Bacterial Vaginosis: Risk Factors Among Kenyan Women and Their Male Partners, Sexually Transmitted Diseases, May 2006, Vol. 33 (6), 361-367. - **2006**
51. Effect of Human Immunodeficiency Virus-1 Infection on Treatment Outcome of Acute Salpingitis”, *Obstetrics & Gynecology*, (in press). - **2006**
52. Immunoepidemiologic profile of Chlamydia trachomatis infection: importance of heat-shock protein 60 and interferon- gamma”. *Journal of Infectious Diseases* , 15;192(4):591-9. - **2005 Aug**
53. Nguti, R., Mugo, N. R., Kwatampora, J., Kimani, P., Muthama, E. and Cohen, C.R. “Factors associated with behaviour change and time to infection with Neisseria gonorrhoeae and Chlamydia trachomatis in an observational cohort of sex workers in Nairobi, Kenya”, - **2005** *16th Biennial Meeting of the International Society for Sexually Transmitted Diseases Research, 2005, Amsterdam 3*
54. Joint modelling of repeated measurements and event time: Application to performance traits and survival of lambs bred in sub-humid tropics” *Genetic Selection Evolution*, 37: 175-197. - **2005**
55. R Nguti et al (2003)Survival of Red Maasai, Dorper and crossbreed lambs in the sub-humid tropics” *Animal Science* , 76: 3-17.
56. Duchateau L., Janssen P., Lindsey P., Legrand C., Nguti R. and Sylvester R. – **2002**. “The shared frailty model and the power for heterogeneity tests in multicenter trials”. *Computational Statistics & Data Analysis*, : 40: 603-620.
57. Njui F.N Deletion Designs – **2002** *Journal of Science and Technology*, 7, (2002), 323-332 Human immunodeficiency virus type 1-infected women exhibit reduced interferon-gamma secretion after Chlamydia trachomatis stimulation of peripheral blood lymphocytes”, *Journal of Infectious Diseases* ,182(6):1672- - **2000 Dec**

58. Muriuki J.N– **2004** Quasistationary sequences in Hilbert spaces *African Journal of Science and technology (AJST) science and Engineering series Vol. 5 No. 2*