

Full Membership Application to the International Mathematical Union - Kenya

Adhering Organization

The adhering organization is the **Mathematical Association of Kenya (MAK)**

Committee for Mathematics

The following are the members of the Committee for Mathematics:

Prof. Wandera Ogana (Chair)
Dr. James N. Katende (Secretary)
Prof. Patrick O. Weke
Prof. Alfred W. Manyonge
Dr. Marguerit Miheso O'Connor
Dr. Jared Ongaro

Background

The genesis of Mathematics in Kenya at higher levels dates back to 1956, with the establishment of the Royal Technical College Nairobi which admitted its first lot of A-level graduates for technical courses in April the same year. The Royal Technical College Nairobi was transformed into the first University College in Kenya in 1961, under the name Royal College Nairobi and was admitted into a special relation with the University of London whereupon it immediately began preparing students in the faculties of Arts, Science and Engineering for degrees of the University of London. The Department of Mathematics was established within the Faculty of Science. On 20th May 1964, the Royal College Nairobi was renamed University College Nairobi, as a constituent college of the University of East Africa and it ceased to award degrees of the University of London as was the case before.

In 1970, the University College Nairobi transformed into the first national university in Kenya and was renamed the University of Nairobi. The same year, Kenyatta University College was established at a campus on the outskirts of Nairobi, as a constituent college of the University of Nairobi, to offer degrees in education and, consequently, it also started to offer degrees in mathematics, with a strong bias towards education. Until 1985 the University of Nairobi and its constituent Kenyatta University College were the only two institutions in Kenya that offered degrees in mathematics. In

1985, Kenyatta University College became an autonomous university and was named Kenyatta University. Since that time there has been a rapid expansion of universities and currently there exist 23 chartered public universities, with 10 constituent colleges, and 17 chartered private universities, with 6 constituent colleges. Most of the public universities, and a few of the private universities, provide mathematics courses at undergraduate and postgraduate levels. In nearly all universities, mathematics is also given as a service course to other programs such as engineering, commerce, business management, economics etc.

The following are the universities with significant research activities and/or postgraduate training in mathematics:

<u>University</u>	<u>Location</u>	<u>Year Established</u>
1. Catholic University of Eastern Africa	Nairobi	1992
2. Daystar University	Nairobi	1992
3. Egerton University	Njoro	1988
4. Jaramogi Oginga Odinga University of Science and Technology (JUST)	Bondo	2013
5. Jomo Kenyatta University of Agriculture and Technology (JKUAT)	Juja	1994
6. Kenyatta University	Nairobi	1985
7. Maseno University	Maseno	1991
8. Masinde Muliro University of Science and Technology (MMUST)	Kakamega	2009
9. Moi University	Eldoret	1984
10. Strathmore University	Nairobi	2002
11. Technical University of Kenya	Nairobi	2013
12. University of Eldoret	Eldoret	2013
13. University of Nairobi	Nairobi	1970

Staff Development, Research and Training

During the 1960s and 1970s a number of Kenyans were sent abroad for their masters and doctoral studies to universities in various countries, for instance United Kingdom (UK), Italy, United States of America (USA) and United Soviet Socialist Republics (USSR), among others. Many of them returned to join the Department of Mathematics at the University of Nairobi and Kenyatta University College, which were predominantly manned by expatriate staff. From the 1980s subsequent generations of mathematicians have been trained, and completed, their PhDs, some locally and others regionally or overseas. Consequently, the number of Kenyan mathematicians teaching in universities and holding PhDs has increased appreciably and the percentage of expatriate staff has decreased between 1971 and 2015, as Table 1 shows, with the 1970 numbers actual and the 2015 numbers approximated.

In the 1970s, due to the increased number of staff members with expertise in different areas, three divisions were established within the departments of mathematics, namely, Pure Mathematics, Applied Mathematics and Statistics. This is still the structure

which governs departments of mathematics in Kenya, except that in recent years some

Table 1: Some statistics on university mathematics in Kenya

	1971	2015
Universities teaching mathematics	1	20
Staff members teaching university mathematics	12	200
Percentage of expatriate staff	75	15
Percentage of Kenyan staff	25	85
Kenyan Professors (Full and Associate) of mathematics	1	30
Kenyans with PhD in mathematics	1	125
Postgraduate students in mathematics	2	250

departments have included Financial mathematics and Actuarial Science. Initially research and training in Pure mathematics focused on operator theory, while in Applied Mathematics the focus was on fluid dynamics and Numerical analysis, and in Statistics the focus was on group screening designs. The situation has dramatically changed and now research and training are in virtually all areas of mathematics, as exemplified by the list of selected publications, provided in a later section.

The mathematics profession was attractive for much of the 1970's and the early 1980's. After this period the remuneration for university staff was not attractive enough and some of the staff members moved out of Kenya to seek greener pastures. In addition, many good students opted for corporate and government jobs which had better pay and terms of service. In spite of this there was a dedicated group who had a passion for mathematics and therefore stayed on and put up with the hardships. To some extent the persistence paid off. From the early 2000s when there was some improvement in the salaries and terms of service of university staff and this made the profession slightly more attractive. At the same time, there emerged a number of local and international initiatives to expand the areas of expertise, encourage research and enhance postgraduate training. Notable among them are the following:

Local public universities: Awarding of scholarships for M.Sc and tuition waivers to members of staff pursuing their doctoral degrees; Research grants through deans Committees; Training on grant applications; Subscription to online journals for easier to access research papers.

National Commission for Science, Technology and Innovation (NACOSTI): Research grants to PhD students.

The German Academic Exchange Service (DAAD): Award of M.Sc and PhD scholarships: Sponsoring short visits to Germany for young researchers to spend some time with German professors for doctoral and postdoctoral research.

and in some cases obtain their PhDs in Germany. DAAD still gives such scholarships and also funds DAAD scholars who are speakers at conferences.

The International Science Program (ISP): Award of scholarships, through the Eastern African Universities Mathematics Program (EAUMP), for pursuit of MSc

and PhD programs and for postdoctoral research by students in the Eastern Africa Region; Support for attendance of a sandwich PhD program in Sweden.

African Mathematics Millennium Science Initiative (AMMSI): Provision of partial scholarships for MSc and PhD studies, through funds provided by the Commission for Developing Countries (CDC) and the Mellon Foundation.

Eastern African Universities Mathematics Program (EAUMP): Has conducted yearly mathematical schools since 2004, through financial support by ISP, in conjunction with ICTP and CIMPA. The schools have mostly been on commutative algebra, algebraic geometry and its applications, linear algebra and representation theory and differential geometry. The schools rotate within the East African Countries. The duration is usually between two to three weeks. This initiative has contributed a lot to enhancing appreciation of Pure Mathematics within the Eastern Africa region.

African Institute for Mathematical Sciences (AIMS): Initially based in Muizenberg, South Africa, this institute has trained a number of Kenyan students some of whom have returned to work in local universities while others have proceeded abroad for PhD studies. AIMS has since established similar institutes in other parts of Africa. Every year, at least half a dozen Kenyan students are admitted to AIMS institutes.

Mentoring African Research in Mathematics (MARM): This is a collaborative project by the International Mathematical Union (IMU), the London Mathematical Society (LMS), and the African Mathematics Millennium Science Initiative (AMMSI). It provides for collaboration between a mathematician (mentor) from the United Kingdom and Europe and a university in Africa. Activities include postgraduate lectures, supervision and research. A number of Kenyan students have subsequently been admitted for PhD studies in the home universities of the mentors.

Conferences, Schools and Workshops

From the 1980's, Kenya has increasingly become a point of attraction for hosting international/regional mathematical conferences, schools and workshops, which are organized by, or in collaboration with, Kenyan mathematicians. In addition to institutional support, other funding sources have come from a number of organizations, notably: IMU-CDC; National Commission for Science, Technology and Innovation (NACOSTI) Kenya; The German Academic Exchange Service (DAAD); The International Science Program (ISP); London Mathematical Society (through AMMSI); ICTP and CIMPA:

The following is a list of selected conferences, schools and workshops organized in Kenya and which have regional or international impact.

1. The Eastern Africa Summer School on Linear Algebra: From Bases to the Google Algorithm; 1 – 14 December, 2008; Bandari College, Mombasa, Kenya.

2. The 1st Kenyatta University International Mathematics Conference; 8 – 10 June 2011; KUCC, Kenyatta University, Nairobi, Kenya.
3. Mentoring African Research in Mathematics (MARM) Roundtable; 9 June 2011, KUCC, Kenyatta University, Nairobi, Kenya.
4. Strathmore University International Mathematics Research Meeting; 23 – 27 July, 2012, Strathmore University, Nairobi, Kenya.
5. Mentoring African Research in Mathematics (MARM) Roundtable; 20 June 2013, KUCC, Kenyatta University, Nairobi, Kenya.
6. East African School on Applicable Algebraic Geometry; 6 – 28 July, 2013, Bandari College, Mombasa, Kenya.
7. The 2nd Strathmore International Conference (SIMC 2013); 12 – 16 August, 2013, Strathmore University, Nairobi, Kenya.
8. Mathematical Modeling and Analysis of Complex Systems; 20 – 31 July, 2015, Lake View Panorama Park, Naivasha, Kenya.
9. The 3rd Workshop on African Women Mathematicians; 16 – 18 July, 2015, Lake View Panorama Park, Naivasha, Kenya.
10. The 2nd Kenyatta University International Mathematics Conference; 20 – 31 July, 2015, KUCC, Kenyatta University, Nairobi, Kenya.
11. The 1st Nairobi Workshop in Algebraic Geometry; 10 - 13 August, 2015, School of Mathematics, University of Nairobi, Kenya.
12. Joint Workshop on Mathematical Modelling, Graph Theory and Discrete Geometry; 28 – 30 June 2016, Graduate School, Kenyatta University, Nairobi, Kenya.
13. International School on Dynamical Systems in Bio-medical Sciences: ISDS 2016; 26 – 30 September 2016, Strathmore University, Nairobi, Kenya.
14. The 2nd Nairobi Workshop in Algebraic Geometry; 8 – 11 August, 2016, School of Mathematics, University of Nairobi, Kenya.

Mathematics Olympiad

The Mathematics Association of Kenya (MAK) has been instrumental in getting Kenya to participate at the Pan African Mathematics Olympiad (PAMO). This was triggered by the PAMO training symposium held in Kenya in March 2006. Kenya participated in PAMO for the first time in 2009 and got one bronze medal. In PAMO 2010 Kenya got one bronze medal and 2 honourable mentions. Due to a variety of reasons, including lack of funds, Kenya did not participate in PAMO again till 2016 when it got one silver medal.

In 2015 Kenya obtained observer status at the International Mathematics Olympiad in Chiang Mai, Thailand. For the first time Kenya has taken a team of students to the International Mathematics Olympiad (IMO), namely IMO-2016 which is being held in Hong Kong during 6 – 16 July 2016.

There is also a local competition, organized by the Mathematical Association of

Kenya, called the Kenya Mathematics Olympiad (KMO). The Kenyan team for PAMO and IMO is selected from the top performers in KMO after which the contestants undergo several weeks of a training program for PAMO or IMO, as appropriate. Kenya has put in a bid to host the Pan African Mathematics Olympiad in 2018 and fund-raising is under way to enable successfully hosting. This will be a big boost for mathematics awareness and will encourage more schools to participate in mathematics competitions and more students to take interest in mathematics.

Regional Impact and international Visibility

Apart from having regional impact through organization of conferences, schools and workshops, Kenya has also achieved regional impact and international visibility in a variety of ways as described below.

Commission for Developing Countries (CDC)

The current President (2015 – 2018) of the IMU-CDC is a Kenyan mathematician, Professor Wandera Ogana, who also served as the Africa representative during 2011 to 2014. The CDC continues to make great strides in the promotion of mathematics throughout the developing world, through a number of initiatives which can be found in its website.

African Mathematics Millennium Science Initiative (AMMSI):

AMMSI is an international non-governmental organization with its headquarters in Nairobi, Kenya. It operates as a distributed network of mathematics research, training and promotion, throughout Africa, with regional offices located in Botswana, Burkina Faso, Cameroon, Morocco, Nigeria and Tanzania. AMMSI is currently engaged in the following activities, among others:

- **The AMMSI-Phillip Griffiths Prize** – awarded annually, starting in 2016, to African mathematicians, living in Africa, who have made outstanding contribution to mathematics, application of mathematics or promotion of mathematics, as evidenced by research and its impact.
- **The AMMSI-Phillip Griffiths Travel Grant** – awarded annually, starting 2016, to mathematicians in the early stages of their career in order to offer research opportunity.
- Support to staff and postgraduate students to enable them attend mathematical conferences organized in Africa.
- Funding for organization of mathematical conferences in Africa.
- Establishment of mentoring projects involving mathematicians from the UK and Europe and institutions in Africa.
- Establishment of mentoring projects involving African Diaspora mathematicians and institutions in Africa.

Pan African University – Institute for Basic Sciences, Technology and Innovation (PAUIST):

The Pan African University was launched in 2011, as a culmination of continental initiatives of the Commission of the African Union to revitalize higher education and research in Africa. It is a project supported by the African Union and has the strategic objective developing institutions of excellence in science, technology, innovation, social sciences and governance, which would constitute the bedrock for an African pool of higher education and research. that will exemplify excellence, enhance the attractiveness and global competitiveness of African higher education and research and establish the African University at the core of Africa's development. It has five institutes spread throughout Africa. Kenya hosts the Institute for Basic Sciences, Technology and Innovation (PAUSTI) at the Jomo Kenyatta University of Agriculture and Technology (JKUAT). In addition to other areas of basic sciences, technology and innovation, PAUSTI has a program for M.Sc and PhD studies in Mathematics. The M.Sc course in mathematics currently covers computational mathematics, mathematical statistic and financial mathematics. Students are admitted into PAU institutes from all over Africa.

Other Information

Mathematical Societies in Kenya

The following are the mathematical societies and in Kenya with the number of members indicated in brackets:

- Mathematical Association of Kenya (MAK) (1500)
- Kenya Mathematical Society (KMS) (200)
- Kenya Women in Mathematical Sciences Association (KWIMSA) (19)
- International Biometry Society Group – Kenya (300)

The Kenya National Academy of Sciences (KNAS) which has 500 members admits individuals depending on their distinguished contribution to various disciplines, including mathematics.

In addition, there exist many mathematics associations for students in various universities.

Well-known Mathematicians

The following are considered to be well-known mathematicians in Kenya:

1. Prof. Wandera Ogana: Has made recognized contribution to computational fluid dynamics, ecological and environmental modeling. He is the President of IMU-CDC, Executive Secretary/Director of AMMSI and African Mathematical Union (AMU) Vice-President for Eastern Africa.
2. Prof. John Wycliffe Odhiambo: Has made recognized contribution to statistics, especially in group screening designs. He is currently the Vice-Chancellor of Strathmore University where he has introduced innovative mathematics.
3. Prof. Patrick Weke: He has made recognized contribution to Actuarial Science and is credited with promoting and advancing studies in his subject in Kenya. In addition, he has actively helped to organize the meetings of the Eastern African Mathematics Programme (EAUMP).
4. Prof. John Mutio: Retired as a Professor of Mathematics at Kenyatta University. He was the first Kenyan to obtain a PhD in mathematics in 1971 and motivated students to take an interest in mathematics in general and pure

mathematics, in particular.

Three other Kenyans made impact in the wider mathematics community but have passed on during the past few years, namely, Prof. George Saitoti, Prof. George Eshiwani and Prof. J. Okutoyi.

Selected Publications: 2008 – 2015

2008

1. Maingi D. M. (2008). On the Minimal Resolution Conjecture for P3 *Int. J. Contemp. Math. Sciences* 3 (33), pp. 1643-1655.
2. Mile J. K., Rao G. K. R., Ogonji J. A. & Simiyu A. N. (2008). Study of non-normal operators in a complex Hilbert space. *Journal of Mathematical Sciences*, 19 (2), 153-161.
3. Nyamwala F. O., & Agure J. O. (2008). Norms of Elementary Operators in Banach Algebras. *International Journal of Mathematical Analysis*, 2, 411 – 424.
4. Mile J. K., Rao G. K. R., Ogonji J. A. & Simiyu A.N. (2008). Study of non-normal operators in a complex Hilbert space. *Journal of Mathematical Sciences*, 19 (2), 153-161.
5. Owino M.O. & Ongati O. (2008). Modular structure of $sl(2)$ *Journal of Research in Physical Sciences*, 4 (3), pp. 32-38.
6. Wasike A. A. M. (2008). Stability and Synchronization, Persistence in diffusive-time- lag-diffusively coupled Oscillators, *SQU Journal for Science*, Vol.13, pp. 33-41.

2009

7. Malonza D. M. & Murdock J. (2009). An Improved Theory of Asymptotic Unfoldings. *Journal of Differential Equations* 247 (2009), pp. 685-709.
8. Oleche, P. O., Ongati N. O. & Agure J. O.(2009). Operators with slowly decaying resolvents toward the spectrum. *International Journal of Pure and Applied Mathematics*, 51 (3), pp. 345-357.
9. Oleche P.O., Ongati N.O. & Agure J.O. (2009). The algebra of smooth functions of rapid descent. *International Journal of Pure and Applied Mathematics*, 52 (2), pp. 163-176.
10. Ongati N.O. & Owino M.O. (2009). On the structures of quotient groups. *International Journal of Pure and Applied Mathematics*, 54 (4), pp. 497-502.
11. Owino M. O. & Chikunji C.J. (2009). Unit groups of $(k+1)$ index radical zero commutative finite rings. *International Journal of Pure and Applied Mathematics*, 57 (1), pp. 57-67.
12. Koross A., Oduor, M. E. O. & Ongati O. (2009). Hybrid finite difference schemes for solving Burger's equation. *Journal of Agriculture, Pure and Applied Science and Technology*, 1, pp. 45-52.

13. Wasike A. A. M. (2009), Stability and Synchronization Manifold in an All-to-all time Lag-diffusively coupled Oscillators, *SQU Journal for Science*, Vol.14, pp. 45-51.

2010

14. Bonyo J. O. & Agure J. O. (2010). Norm of a derivation and hyponormal operators. *International Journal of Mathematical Analysis*, 4, pp. 687-693.
15. Esekun J., Onyango S. & Omollo-Ongati N. (2010). Analytic solution of a nonlinear Black-Scholes partial differential equation. *International Journal of Pure and Applied Mathematics*, 61 (2), pp. 219-230.
16. Kwanza K., Mugambi K. E. & Kinyanjui M. (2010). Boundary layer thickness and frictional drag on submerged curved plate. *Journal of advances and applications in fluid mechanics*, Vol. 7, pp 61-70.
17. Maingi D. M. (2010). On the Application of the Method of Horace to get the number of generators for an ideal of s general points in P^4 , *International Journal of Algebra*, 4 (10), pp. 477-500.
18. Malonza D. (2010). Stanley Decomposition for Coupled Takens-Bogdanov Systems, *Journal of Nonlinear Mathematical Physics*, Vol. 17, No.1, pp. 69 - 85.
19. Ouma C., Odhiambo R. & Orwa G., (2010). Robust confidence intervals for model based surveys in two stage cluster sampling. *Pakistan journal of theoretical statistics*, Vol 2-2, pp. 83-97.
20. Onyango N. O. (2010). Optimal Vaccination Strategies in periodic settings and Threshold conditions: A Survey." . *International Journal of Biomathematics and Biostatistics*, (2), pp. 193-201.
21. Onyango S. N., Omollo-Ongati N. & Otula N. J. (2010). On the Walrasian-Samuelson price adjustment model. *International Journal of Pure and Applied Mathematics*, 61 (2), pp. 211-218.
22. Osodo J., Indoshi F. C. & Ongati O. (2010). Attitudes of students and teachers towards use of computer technology in geography education. *Educational Research*, 1 (5), pp 145-149.
23. Otumba E. O. & Onyango F. (2010). Sensitivity Analysis of Leslie Matrices. *Journal of Mathematical Sciences*, 21, pp. 101-112.

2011

24. Behncke H.; Nyamwala, F.O (2011) Spectral analysis of higher order differential operators with unbounded coefficients II. *Mathematische Nachrichten*. 285(2-3), 181–201, (Wiley)
25. Kwach B., Ongati O. & Simwa R. (2011). Mathematical Model for Detecting Diabetes in the Blood. *Applied Mathematical Sciences*, 5 (6), pp. 279 – 286.
26. Lawi G. O. & Manyonge A. W. (2011). 3-Dimensional Mathematical Modelling of Temperature Distribution in Porous Media, *International Journal for Pure and Applied Mathematics*, IJPAM, Vol 70, No. 7, pp.1021-1028.

27. Lawi G. O., Mugisha J. Y. T. & Omolo-Ongati N. (2011). Mathematical Model for Malaria and Meningitis Co-infection among Children, *Applied Mathematical Sciences*, Vol. 5, No. 47, pp. 2337-2359.
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29. Malonza D. M. & Ofoedu E. U. (2011). Hybrid Approximation of Solutions of Nonlinear Operator Equations and Application to Equation of Hammerstein-type - *Journal of Applied Mathematics and Computation*, Vol. 217 (3), pp. 6019 – 6030
30. Manyanga D. O. & Wen-yang D. (2011). Green Functions due to Pulsating Sources in a Two-layer Fluid of Finite depth. *J. China Ocean Engineering*, Vol. 25 (4), pp. 609-624.
31. Ngare P. & Leobacher G. (2011). On modelling and pricing rainfall derivatives with seasonality. *Applied Mathematical Finance*, 18(1), pp. 71-91.
32. Okango A. A. & Odongo L.O. (2011). Asymptotic Linear Estimation of the Quantile Function of the Double Exponential Distribution Based on Selected Order Statistics, *East African Journal of Statistics*, Vol. 5, No.1, pp. 1-25.
33. Owuor L.G. & Manyonge W.A. (2011). 3-Dimensional Mathematical Modelling of Temperature Distribution in Porous Media. *International Journal of Pure and Applied Mathematics*, 70 (7), pp. 1021-1028.

2012

34. Gachigua G., Malonza D. M. & Sigey (2012). Normal Form for Systems with linear part $N_{3(n)}$, *Journal of Applied Mathematics*, 3, pp. 1641-1647.
35. Kamaku W., Kivunge B. & Wangeci C. (2012). Some properties and limitations in the ISBN -13 CODE P, *International Electronic Journal of Pure and Applied Mathematics*, Vol. 4, No. 3, pp. 159-165.
36. Kimathi G., Wasike A. A. M. & Pokhariyal G.P. (2012). Mutual Inhibition competition, and periodical in two species chemostat-like-system. *International Journal of Applied Mathematics and Computation*, Vol.4 (1), pp. 77-86.
37. Kinyanjui M., Giterere K. & Uppal S.M. (2012). MHD Flow in Porous Media over A Stretching Surface in Rotating System in Porous Media with Hall Currents, Heat and Mass Transfer. *International Electronic Journal of Pure and Applied Mathematics*. Vol. 4, No. 4, pp. 230-261.
38. Malonza D. M. & Zekeye H. (2012). Hybrid Approximation of Solutions of Integral Equations of Hammerstein Type. *Arabian Journal of Mathematics-DOI 10.1007/s40065-012-0060-z -2012*.
39. Manyanga D. O & Wen-yang D. (2012). Internal Wave Propagation from Pulsating Sources in a Two-layer Fluid of Finite Depth. *J. Applied Mechanics and Materials*, Vols. 201-202, pp. 503-507.
40. Njenga J. K., Kwanza J.K. & Gathia P.W. (2012). Velocity distributions and Meander Formation of River Channels. *International Journal of Applied Science and Technology*. Vol. 2, No 9, pp. 28–39.

41. Otumba E. O., Mwambi H. & Onyango F. (2012). An Aggregated Model for Optimal Harvesting of Fish. *International Journal of Ecological Economics and Statistics*, 27(4), pp. 76-88.
42. Owino, M.O. (2012). Automorphisms of a certain class of completely primary finite rings. *International Journal of Pure and Applied Mathematics*, 74(4), pp. 465-482.
43. Tamba C. L. & Mwangi J. W. (2012). Computational Pool-Testing with Retesting Strategy. *International Journal of Scientific and Statistical Computing (IJSSC)*, Vol.3, No.2, pp. 47-54.

2013

44. Wairimu J. K. & Ogana W. (2013). The dynamics of vector-host feeding rate with saturation ; A case of malaria in Western Kenya. *Applied Mathematics Journal*. Vol.4, No.10, pp. 1535-1545.
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55. Odero E. A., Odongo L. & Onsongo F. (2013). The relationship between level of Sexuality of women of different levels of education and fertility. *International Journal of Physical and Social Sciences*, 10 (3), pp. 412–434.
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60. Olege F. (2013). 32 - bit cyclic redundancy code polynomial, *Lambert Academic Publishing*, ISBN 978-659-42415-1.
61. Sang N. K., Manyonge, A.W. & Shichikha J. M. (2013). An Investigation of the effects of boundary layer thickness on a thin film of liquid flow down and inclined plane. *Pioneer Journal of Mathematics and Mathematical Sciences*, 8(1), pp. 21-33.
62. Wanambisi W., Away S., Muchiri G. M. & Maende C. (2013). Algebraic approach to composite integer factorization, *International Journal of Mathematics and Statistics Studies, ECRTD, EAJ*, Vol. 1, No.1, pp. 39-44

2014

63. Akuno A. O., Orawo L. A. & Islam A.S. (2014). One-Sample Bayesian Predictive Analyses for an Exponential Non-homogeneous Poisson Process in Software Reliability, *Open Journal of Statistics*, 4, 402-411.
64. Angwenyi N. D., Ojiema M. O., Lawi G.O. & Owino M. O. (2014). On the computational efficient numerical solution of the Helmholtz equation. *International Mathematical Forum*, Vol 9, No. 6, pp. 259–266.
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