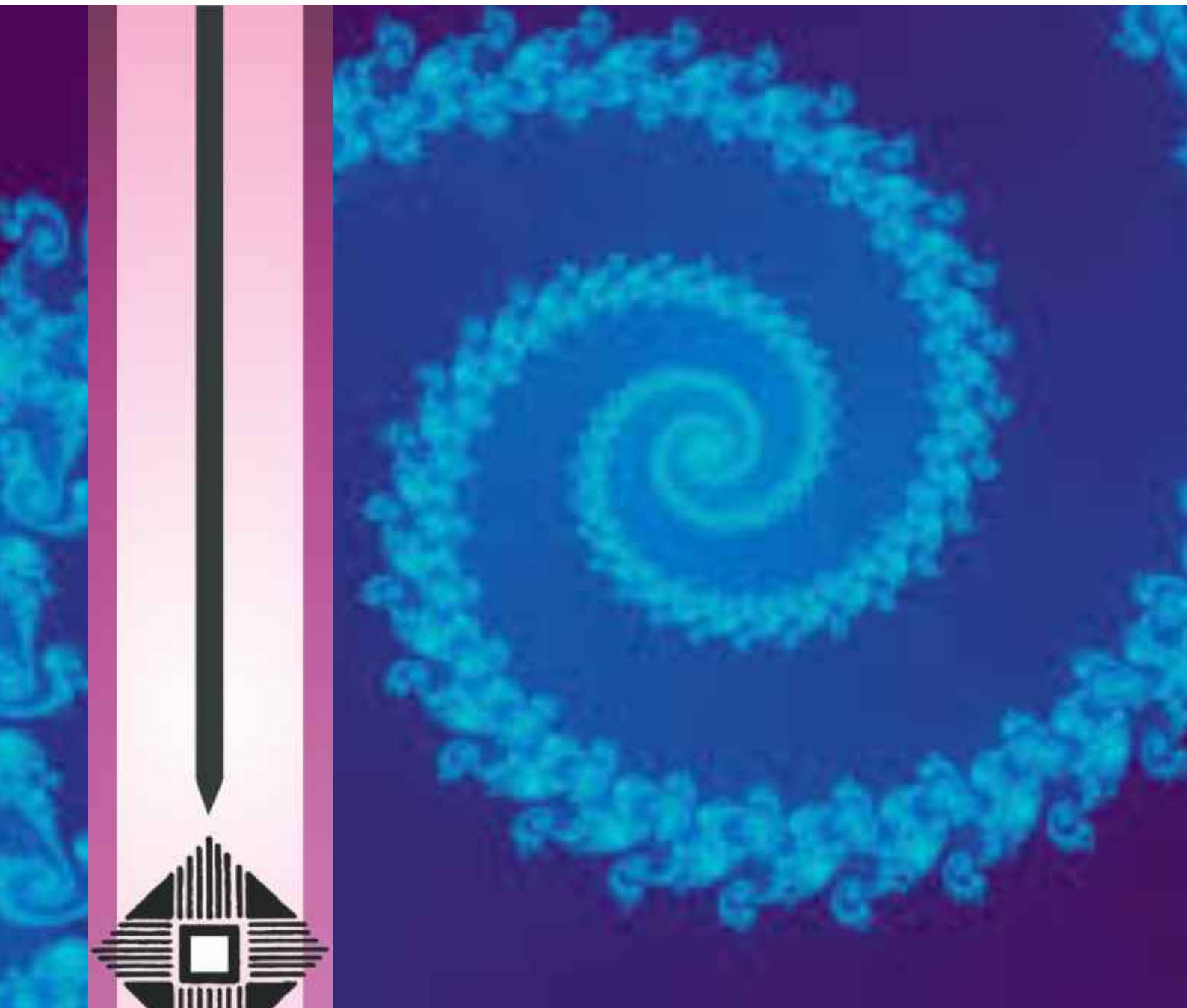


# Notices

OF THE NIGERIAN MATHEMATICAL SOCIETY

E-mail: [noticesnms@gmail.com](mailto:noticesnms@gmail.com)

Volume 6, No. 1, 2017



- |                                     |                                     |                                 |
|-------------------------------------|-------------------------------------|---------------------------------|
| 05 - Council Members                | 11 - Report From LOC, FUTMinna 2016 | 24 - The Graduate Student Forum |
| 06 - List of Fellows of the Society | 13 - President's Address            | 27 - Felicitation               |
| 07 - List of New Fellows            | 14 - Profiles                       | B/P - LOC BUK 2018              |
| 10 - 2016 Ceremony Picture          | 20 - Plenary Speakers               |                                 |

**EDITOR - PROFESSOR SAMUEL SEGUN OKOYA**

# EXTRACT FROM THE 2ND ANNUAL AND VALEDICTORY LECTURE OF PASTOR E. A. ADEBOYE ENDOWED PROFESSORIAL CHAIR IN MATHEMATICS, UNIVERSITY OF LAGOS, NIGERIA.

**First Chair Occupier and Lecturer:** Professor Samuel Segun Okoya.

**Title:** Charting New Frontiers in Applicable Mathematics: the Science of Combustion and Heat Transfer

## A. Objectives of Combustion Modelling

1. To stimulate combustion processes and, to develop predictive capability for combustion behaviour under various conditions;
2. To help in interpreting and understanding observed combustion phenomena;
3. To substitute for difficult or expensive experiments;
4. To guide the design of combustion experiments;
5. To help establish the influence of individual parameters in combustion processes by conducting parametric studies.

## B. Combustion methods of recent progress

Some specific methods of recent contributions to tackle Ordinary Differential Equations (ODEs) and Partial Differential Equations (PDEs) in combustion are listed as follows:

- i. Closed-form solutions obtainable from mathematical methods provide useful solutions to variety of combustion problems and serve as a benchmark to validate numerical results.
- ii. Regular asymptotic technique has been chosen for discussion of a wide spectrum of heat and

mass transfer problems. In fact, combustion and regular asymptotic fits remarkably well as evident in literature.

- iii. Singular perturbation method especially matched asymptotic expansion and multi-scale methods have now provided systematic approach to the study of many interesting combustion processes.
- iv. Homotopy perturbation & Adomian decomposition methods:  
The use of these two techniques to solve systems of ODEs and PDEs is increasing rapidly because of the enhanced capability of electronic computer to handle symbolic computation.
- v. Complex analysis: the pace of progress in the use of complex variables throughout combustion is remarkable but they cannot rightly be said to represent the mainstay of mathematical methods in combustion
- vi. Rigorous numerics: with the availability of powerful computer and sophisticated software packages, numerical experiment and simulations has quickly become primary tool to study the simplified combustion models. It is interesting that while the progress increases, a fundamental question one may ask is how reliable are our computations? It is usually essential to adopt validated computations or simulations to overcome the obstacles of the errors due to approximation in the sense of rounding and truncation.

## C. Some practical applications on the place of combustion of fuel

| FUEL          | EVERYDAY USES  |
|---------------|--|
| Coal          | Burn in central power stations to raise the steam for the turbines                               |
| Gasoline      | Used as a source of energy for vehicles of all sorts— automobiles, aircraft and ships            |
| Natural gas   | Used as fuel for gas turbines or reciprocating engines; a well -known household cooking material |
| Nuclear Power | Used as an energy source in industrial societies   |

## D. Research Output during my four years stay

Selected research output in the course of occupying the Pastor E. A. Adeboye Endowed Professorial Chair in UNILAG. It will be shown below that in each problem, new features arise.

1. One dimensional description of thermal explosion (**Okoya**, *J. Hydrodynamics*, Ser. B, **28** (1) 84 – 94, 2016).
2. Illustrative Problem of thermal explosion (Ogunseye & **Okoya**, *J. of the Nigerian Mathematical Society* (Under revision based on the

request of the reviewers), 2017).

3. Illustrative Problem of thermal explosion (**Okoya**, Ongoing research work).
4. Fourth illustrative Problem of thermal explosion (Ogunseye & **Okoya**, Ongoing research work).

**For the full text, please visit:**  
[www.nigerianmathematicalsociety.org](http://www.nigerianmathematicalsociety.org) or  
[www.researchgate.net/profile/S\\_Okoya](http://www.researchgate.net/profile/S_Okoya)



**HIS EXCELLENCY**

**MUHAMMADU BUHARI** *GCFR*

PRESIDENT, COMMANDER-IN-CHIEF OF THE ARMED FORCES  
FEDERAL REPUBLIC OF NIGERIA



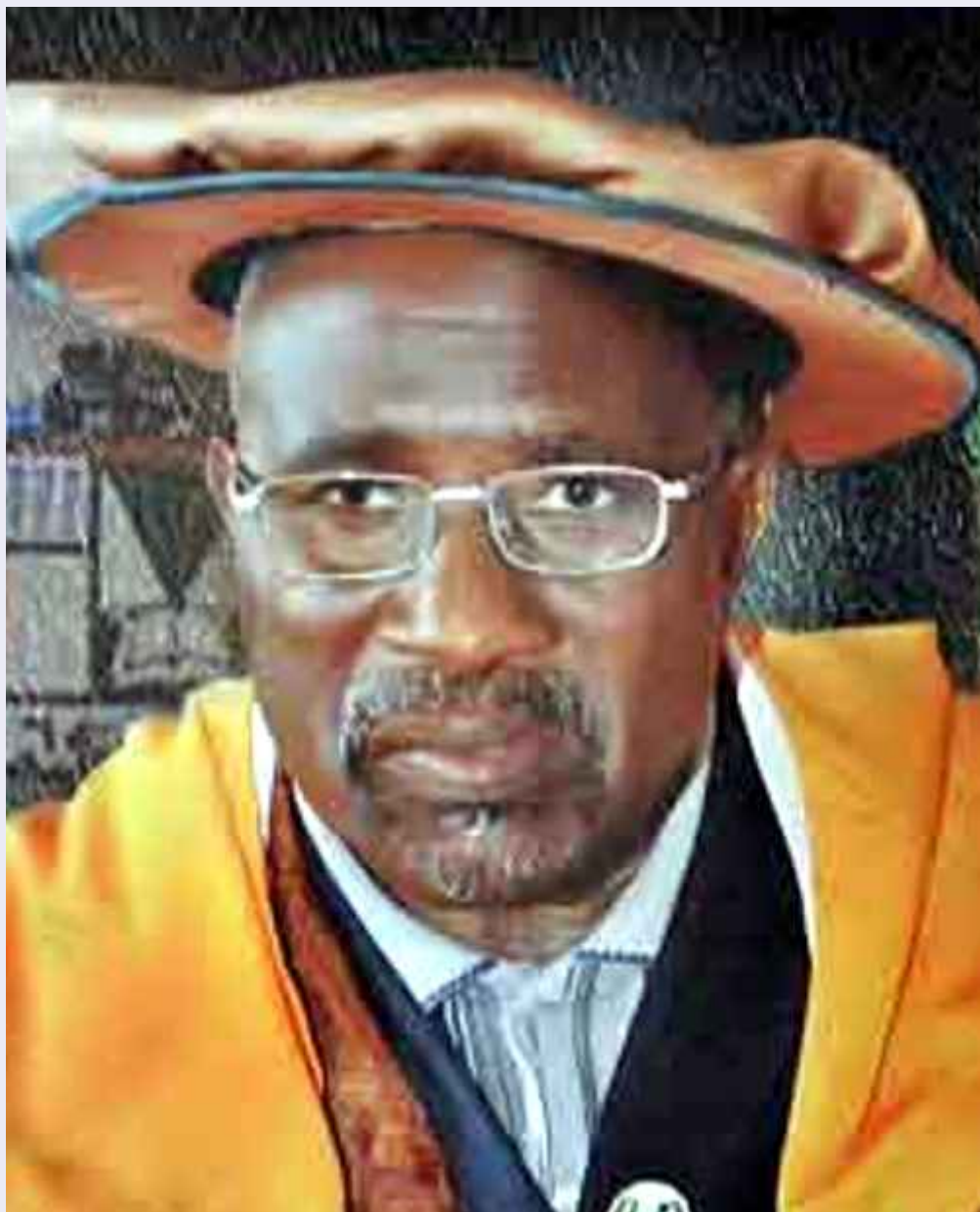
**HIS EXCELLENCY**

**SAMUEL ORTOM**

EXECUTIVE GOVERNOR, BENUE STATE

**SPECIAL GUEST OF HONOUR**





**VICE CHANCELLOR**

**ENGR. PROF. EMMANUEL I. KUCHA** *KSM, FNSE*

FEDERAL UNIVERSITY OF AGRICULTURE,  
MAKURDI, BENUE STATE



**PROF. NINUOLA IFEOLUWA AKINWANDE** *FNMS*

THE PRESIDENT OF THE  
NIGERIAN MATHEMATICAL SOCIETY (NMS)

## COUNCIL MEMBERS

THE NIGERIAN MATHEMATICAL SOCIETY

|    | NAME                   | POST                          | INSTITUTION  |
|----|------------------------|-------------------------------|--|
| 1. | Prof. N. I. Akinwande  | President                     | Federal University of Technology, Minna                          |
| 2. | Dr. Bashir Ali         | Vice President                | Bayero University, Kano  |
| 3. | Prof. G. C. E. Mbah    | Secretary                     | University of Nigeria, Nsukka                                    |
| 4. | Dr. Sirajo Abdulrahman | Asst. Secretary               | Federal University of Technology, Minna                          |
| 5. | Prof. S. S. Okoya      | Editor-in-Chief               | University of Lagos, Lagos & Obafemi Awolowo University, Ile-Ife |
| 6. | Prof. O. J. Adeniran   | Business Manager              | Federal University of Agriculture, Abeokuta                      |
| 7. | Prof. Remi Odekunle    | Ex-Officio                    | Modibbo Adama University of Technology, Yola                     |
| 8. | Prof. J. A. Oguntuase  | Ex-Officio & Acting Treasurer | Federal University of Agriculture, Abeokuta                      |
| 9. | Prof. M. O. Osilike    | Immediate Past President      | University of Nigeria, Nsukka                                    |



Prof. N. I. AKINWANDE (FNMS)



Dr. Bashir ALI



Prof. G.C.E. MBAH



Dr. Sirajo ABDULRAHMAN



Prof. S. S. OKOYA (FNMS)



Prof. O. J. ADENIRAN



Prof. Remi ODEKUNLE



Prof. J. A. OGUNTUASE (FNMS)



Prof. M. O. OSILIKE (FNMS)

In retrospect, the NMS has made awards of fellow to a number of mathematicians of Nigeria origin for their meritorious service towards the advancement of mathematics in Nigeria and abroad.

## 2015 RECIPIENTS

1. Professor Iya ABUBAKAR (*FNMS*)
2. Pastor Enoch Adejare ADEBOYE (*FNMS*)
3. Professor James Nwoye ADICHIE (*FNMS*)
4. Professor Eben Akin AKINRELERE (*FNMS*)
5. Professor Samuel Akindiji ILORI (*FNMS*)
6. Professor Olusola AKINYELE (*FNMS*)
7. Professor John Chukwuemeka AMAZIGO (*FNMS*)
8. Professor Sunday Osarumwense IYAHEN (*FNMS*)
9. Professor Monsur Akangbe KENKU (*FNMS*)
10. Professor Aderemi Oluyomi KUKU (*FNMS*)
11. Professor Emmanuel Oguntokun OSHOBI (*FNMS*)
12. Professor Kevin Ejere OSONDU (*FNMS*)

## 2016 RECIPIENTS

13. Professor Kayode Rufus ADEBOYE (*FNMS*)
14. Professor Anthony Uyi AFUWAPE (*FNMS*)
15. Professor Michael Olusanya AJETUNMOBI (*FNMS*)
16. Professor Ninuola Ifeoluwa AKINWNDE (*FNMS*)
17. Professor Udot Isaac ASIBONG (*FNMS*)
18. Professor Charles Ejikeme CHIDUME (*FNMS*)
19. Professor Godwin Osakpemwoya Samuel EKHAGUERE (*FNMS*)
20. Professor Jacob Abiodun GBADEYAN (*FNMS*)
21. Professor Oyewusi IBIDAPO-OBE (*FNMS*)
22. Professor Frank Ikechukwu OCHOR (*FNMS*)
23. Chief Ajibola OGUNSOLA (*FNMS*)
24. Professor James Adedayo OGUNTUASE (*FNMS*)
25. Professor Samuel Segun OKOYA (*FNMS*)
26. Professor Peter ONUMANYI (*FNMS*)
27. Professor Micah Okwuchukwu OSILIKE (*FNMS*)
28. Professor Babangida SANI (*FNMS*)
29. Professor Adewale Roland Tunde SOLARIN (*FNMS*)
30. Professor Abba Ali TIJJANI (*FNMS*)





4 individuals have been nominated for the 2017 FNMS award for their outstanding contributions and influence in the society. The brief write-ups capture their credentials, silent administrative achievements, wealth of experience in the endeavours and positive contributions to the mathematics community at home and abroad. The names and the institutions of the nominee to be inducted follow:



Professor Jerome Ajayi **ADEPOJU**

Professor Francis Kofi Ampenyin **ALLOTEY**



Professor Alexander O. E. **ANIMALU**

Professor Iheanyichukwu Sylvester **IWUEZE**



## 2016 events



Prof. M. A. Akanji, VC FUTMinna delivers his welcome address at the opening ceremony



L-R: Prof. C. E. Chidume and Prof. A. A. Tijjani at the award ceremony



Council members on courtesy visit to VC of UAM, Engr. Prof. E. I. Kucha



Chief Ajibola Ogunsola being presented with plaque of award



R-L: Prof. N. I. Akinwande (President), Prof. M. A. Akanji (Chief Host), Prof. A. R. T. Solarin (Awardee) and Prof. K. R. Adeboye (Awardee)



Prof. G. O. S. Ekhuagere being presented with plaque of award



## 2016 events



Dr. S. C. Nwaosu (in glasses), the Chairman, LOC, Markurdi 2017 with his team at Minna



Mr. Peterson Kaura, the Kauran Minna & Chairman, Local Govt. Service Commission, Niger State represented the Emir of Minna at the award Ceremony



Prof. G.O.S. Ekhaguere flanked by the wife and Prof. N. I. Akinwande also flanked by the wife during an award ceremony



Prof. M. O. Osilike during the award ceremony



Prof. N. I. Akinwande (FNMS) with the wife during the award ceremony



L-R: Prof. M. O. Ajetunmobi (awardee), Chief A. Ogunsola (awardee), and Prof. O. Ibidapo-Obe (awardee)





The FNMS awardees in a group photograph



## **THE 35TH ANNUAL CONFERENCE**

**OF THE NMS HOSTED BY THE DEPARTMENT OF MATHEMATICS,  
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA (2016)**

The 35<sup>th</sup> Annual Conference of the Nigerian Mathematical Society was successfully hosted by the Department of Mathematics, Federal University of Technology, Minna, from the 3<sup>rd</sup> of May, 2016 to the 6<sup>th</sup> of May, 2016 with participants from within and outside the country. The theme of the conference was **"MATHEMATICS: A TOOL FOR VERITABLE CHANGE"**.

The opening ceremony was witnessed by a mammoth crowd at the Centre for Preliminary and Extral-Mural Studies (CPES) Main Hall. The Vice-Chancellor, Professor M. A. Akanji declared the conference open on behalf of the Executive Governor of Niger State, Alhaji Abubakar Sani Bello. The Vice-Chancellor also delivered his welcome address as the Chief Host. The management team, representative of Emir of Minna, Deans of Schools, and Directors of units and Heads of Departments were present to grace the occasion. The hall was filled with applause and jubilation when eighteen distinguished mathematicians were inducted as Fellows of the Nigerian Mathematical Society.

The three out of five invited speakers present at the occasion delivered their papers during the plenary sessions. They are Prof. Anthony Uyi Afuwape, of blessed memory, Prof. Adewale Roland Tunde Solarin and Prof. Aderemi Oluyomi Kuku.

NMS MINNA 2016 conference was made possible with the help of God, the support of the University Management and the unflinching and kindness we received from our dear Royal Father, Alhaji (Dr.) Umaru Faruk Bahago, C.O.N, The Emir of Minna. Prof. Y. A. Yahaya (Director Academic Planning Unit) secured two buses for the conference from the University Management. Dr. Danladi Hakimi was dogged in fund raising and the Local Organizing Committee (LOC) was aggressive with publicity to achieve this success.

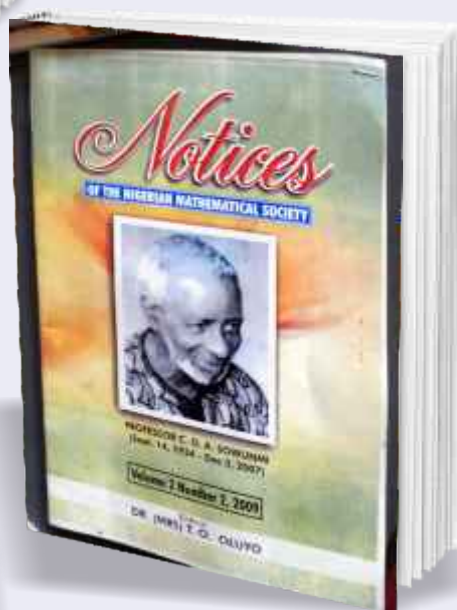
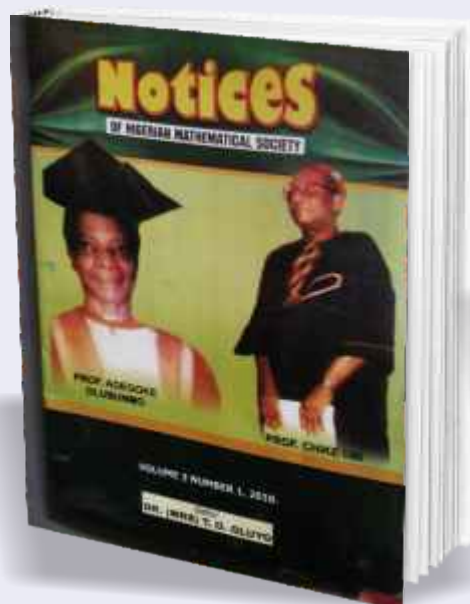
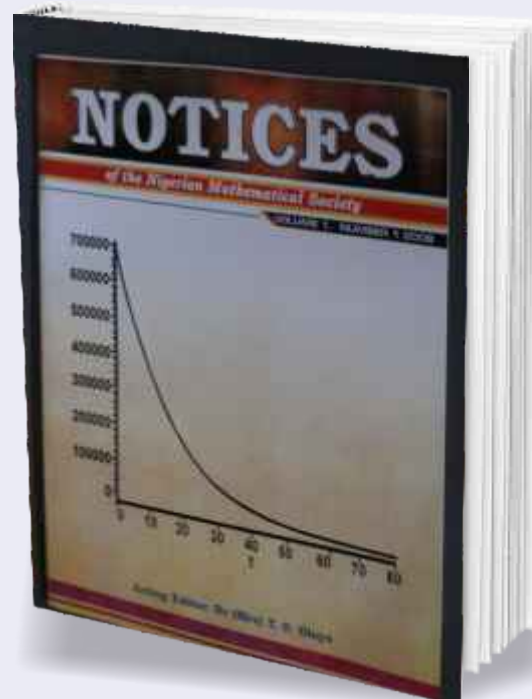
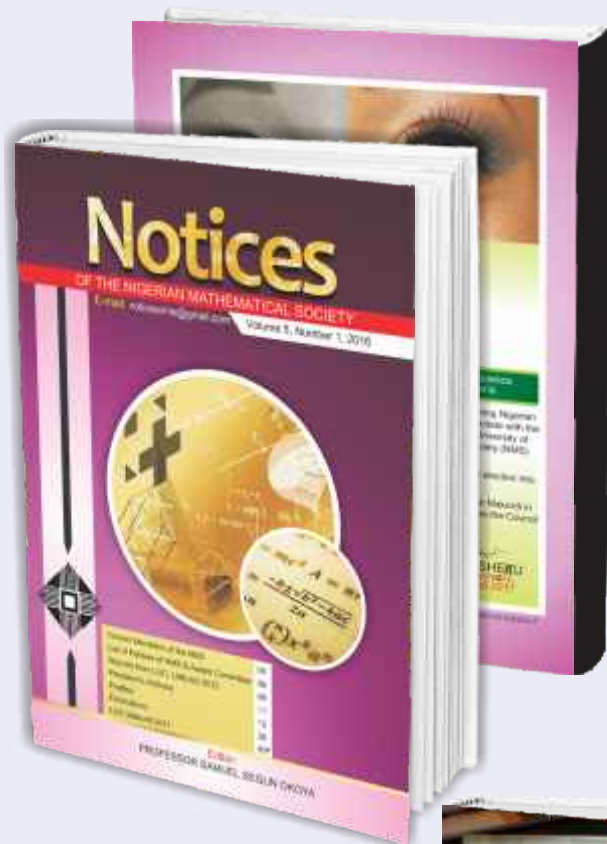
The annual general meeting was well attended by the participants.

The meeting was a true celebration of mathematics and the participants departed with tremendous satisfaction.

**Dr. R. O. Olayiwola**  
*Chairman, LOC*

**Dr. G. A. Bolarin**  
*Secretary, LOC*

## FRONT COVERS OF PAST NOTICES OF THE NMS



*Please make sure that the  
**NMS Notices** find a home on  
every mathematician's desk.*

**PRESIDENT'S  
ADDRESS**

**I**t gives me great pleasure to make these Remarks for the special NMS Notices dedicated to the great event of the investiture of Four (4) distinguished eminent Mathematicians as Fellow(s) of the Nigerian Mathematical society, (FNMS); and marking the 36<sup>th</sup> Annual Conference of the NMS holding this year at the Federal University of Agriculture, Makurdi.

The Nigerian Mathematical Society, (NMS) was founded 36 years ago by our fathers of mathematics some of whom are on our honours list for this occasion. It is evident that the society is waxing stronger.

The award of the FNMS took off in 2015 when twelve (12) of the founding fathers of the society

were conferred with the award at the 34<sup>th</sup> Annual Conference held at the university of Lagos followed by additional eighteen (18) in 2016 at the Federal University of Technology, Minna. The array of Mathematical Sciences Scholars on this year's list is an indicator that despite the rather harsh teaching and research conditions prevalent in the African sub-region, some have doggedly pursued this field of knowledge which is dreaded by many with vigour and determination. The Awardees are Mathematical Scientists of international standing with distinguished accomplishments as attested to by their profiles/ citations contained in this Notices.

Mathematics is the driving force for meaningful Scientific, Economic, Agricultural and Technological breakthroughs and advancement and so should be given all the support needed for scholarship.

To the distinguished Awardees, I wish to congratulate you all and wish you longer life of continuous outstanding services to humanity in general and worthy contributions to the advancement of Mathematical Sciences. By this investiture, you are automatically conferred with LIFE MEMBERSHIP of the NMS.

Long live NMS,

Long live the Federal Republic of Nigeria and Africa.

***Professor Ninuola Akinwande*** **FNMS**  
***President, NMS***  
***May, 2017***



## Professor Jerome Ajayi **ADEPOJU**

**P**rofessor Jerome Ajayi Adepoju, a distinguished academic with over 40 years of experience in teaching and research, was born on the 10<sup>th</sup> of November, 1946 in Sosan, Akoko, South-East, Ondo State. He began his academic pursuit at St. Patrick's College, Oka, Ondo State between 1959-1964 and his H S C in St. Patrick's College Asaba between the year 1966-1967 after which he proceeded to Hiram College, Hiram, Ohio, U S A where he studied Mathematics with Economics. He graduated with departmental Honours in 1971. In the same year, he was admitted into the University of Akron, Akron, Ohio, U S A to study for a Master of Science degree in Mathematics which he completed in 1973. In 1975, he joined the staff of University of Lagos, Mathematics department as an Assistant Lecturer and was admitted to study for a Doctorate of Philosophy degree in 1977 which he completed in record time in 1980 under the supervision of Prof. M. Nassif.

Professor Adepoju's main research interest is in Real and Complex Analysis (Basic Sets), where he has made valuable contributions. He has proved several new theorems on the representations and effectiveness of Basic Sets.

The erudite Scholar was appointed Professor of Mathematics, University of Lagos in 1996; Director of

Academic Planning, 1996-2000; Head of Mathematics Department, 1991-1993, 2006-2009, Sub-Dean Faculty of Science, Unilag, 1986-1988; and also served in many committees in University of Lagos and other Universities. He was appointed Deputy Vice-Chancellor (Administration and Management Services) University of Lagos, Akoka in 2000.

Professor is a member of some academic and professional bodies including: Council member, Nigeria Mathematical Society, 1995-2004; member of council, The Institute of Security of Nigeria, 2002-2011; council member, Science Association of Nigeria (SAN) 1986-1988. He has supervised and mentored several students at Masters' level and Ph.D. graduates such as Prof. Johnson Olaleru and Dr. Adesanmi Mogbademu both of University of Lagos, Department of Mathematics. He is presently a visiting Professor of Mathematics (on contract) at the Federal University of Petroleum Resources, Effurun, Delta State (2011-till date).

Professor Adepoju is happily married and blessed with children and grandchildren.





## Professor Francis Kofi Ampenyin **ALLOTEY**

*DIC, MA, PhD, HON. D.Sc.*

**P**rofessor Francis Kofi Ampenyin Allotey was born at Saltpond, Ghana. He was educated at the Roman Catholic Elementary School, Saltpond, Ghana National College, Cape Coast; the University Tutorial College, London; Borough Polytechnic (now called University of South Bank), London; Imperial College of Science and Technology, London and Princeton University, USA.

Professor Allotey was appointed lecturer at the Kwame Nkrumah University of Science and Technology (KNUST) and rose through the ranks to become the first Ghanaian Full Professor in Mathematics and Head of the Department of Mathematics in 1973.

**While at KNUST, he held a number of positions. These included Dean of Faculty of Science, founder and first director of the Computer Science Centre in Ghana, Pro -Vice Chancellor and member of KNUST University Council.**

Founding member, African Institute of Mathematical Sciences; he has organized and directed several workshops and conferences at national and international levels, Information and Communication Technology and Mathematical Sciences in various countries including the USA, Australia, Italy, Sweden, Ethiopia, South Africa, Senegal, Botswana, Kenya,

Guyana and Cote d'Ivoire. For example, he was Chairman of the Williamsburg Conference on International Information Economy in Virginia, USA in 1986; Chairman and Organizer of the Section on Computer Education in Developing Countries of the 1980 International Federation of Information Processing (IFIP) Congress in Melbourne, Australia; and Chairman of the panel discussion on the Financial and Quantitative Aspects of Computer Education at the IFIP Congress, Marseilles, France and Member of International Panel on Requirements of developing countries regarding Informatics Education, Lausanne, Switzerland, 1981. Chairman: International Working Party for the Analysis of Economics and Commercial Impact of Transborder Data Flow, Roma, Italy; Vice President, United Nations Review conference on the Non-proliferation of Nuclear Weapons, Geneva (1975); **Appointed by the Secretary-General of United Nations to be among a group of 12 international experts commissioned to advise United Nations in Nuclear Weapon.**

**He has held and still holds a number of**

**National Appointments: Chairman and Member, Ghana Atomic Energy Commission and; Council for Scientific and Industrial Research (CSIR): Chairman; member of Council, Ghana Telecom University College and Member, Ghana UNESCO Commission, Chairman, Accra Institute of Technology.**

He was the first to introduce the theory of electron-hole scattering resonances effect on soft X-ray spectroscopy in metals. This effect has been observed experimentally.

Professor Allotey has won a number of Local and international Awards including the Ghana Academy of Arts and Science Prince Philip Gold medal in 1973. He was elected to a Fellow of the Academy in 1971; the King/Chevez/Park Visiting Professor at the University of Michigan; Ann Arbor, Michigan, USA and he was Office of Naval Research Visiting Professor at Clark Atlanta University, USA; Visiting Scholar, Chalmers University of Sciences and Technology, Sweden.

**He has received DSc. Honoris Causa from the University of Cape Coast; Kwame Nkrumah University of Science and Technology, Karlstad University, Sweden; University of Education, Winneba; University of Maryland (USA) and Walter Sisulu University (South Africa), Presidential Medal award, University of Maryland, USA.**

He is recipient of the Ivory Coast Mathematics Society Medal and the African Mathematical Union Medal for quality contribution to Mathematics and for Pioneering and Promoting Mathematics in Africa. He is also a recipient of the Ghana Science Association's Deserving Scientist Award, American Medal of Honour Award and a Meritorious Service Award from the Mathematical Association of Ghana. He received a Certificate of Appreciation from the American Nuclear Society, World Bank/IMF African Club Distinguished Scientist Award and BTWSC, Black S/Heroes Award (London), 2006.

He is an Honorary Fellow, Ghana Institution of

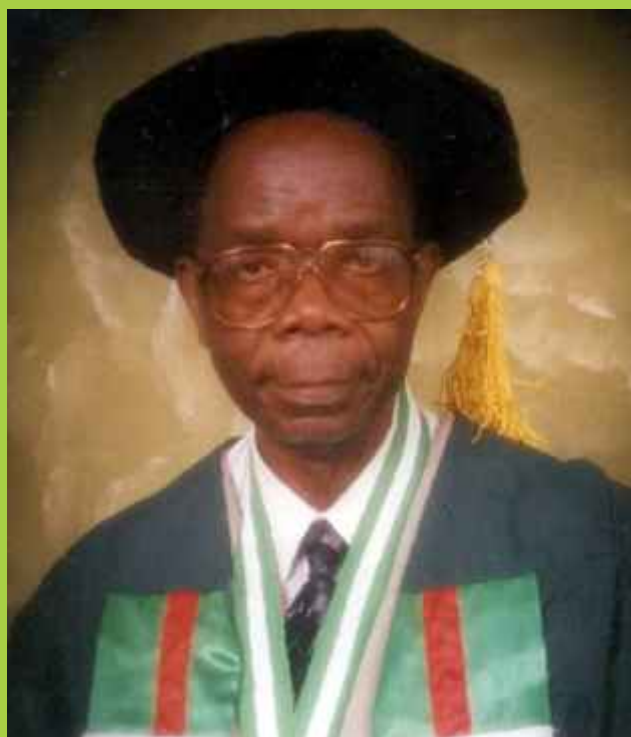
Engineers; Fellow, Academy of Science for the Developing World; Founding Fellow and Vice President, African Academy of Sciences; Chartered Fellow of the British Computer Society (BCS); Honorary Fellow of Institute of Physics (U.K); Founding Fellow and President, Ghana Institute of Physics; Founding Fellow and Chairman, Ghana Institute of Information Technology; President of Society of African Physicists and Mathematicians; Patron: African Institute of Mathematical Sciences, Muizenburg, South Africa, Ghana Science Teachers' Association; Computing Society of Ghana and Mathematics Association of Ghana.

Member; International Committee of Experts on "The Role of International Atomic Energy Agency beyond the year 2000"; High-level Scientific Experts Panel, International Centre for Science and High Technology, Italy.

**Order of Volta (Companion) 2006; Millennium Excellence Award for Science and Environment, 2005; Millennium Award Personality of the decade Ghana, 1999, and National Art and Culture Award for Science, 1991.**

**Professor Allotey is co-author of the book "Comprehensive Study of Nuclear Weapons"; a UN Secretary-General's Report. He has written over 100 Original Scientific articles in International journals.** He was a member of the UNESCO Physics Action Council, Scientific Council - International Institute of Theoretical and Applied Physics, Ames, USA. He was for several years a Governor, International Atomic Energy Agency, Austria. He is a Member of the International Scientific Advisory Council, Molecular Frontier (Sweden) and the International Centre for Theoretical Physics (ICTP), Trieste, Italy. He has been a Consultant for UNESCO, UNIDO, UNO and IAEA.

**To commemorate his contribution to science, the government of Ghana issued a postage stamp with his portrait in 2006.**



## Professor Alexander O. E. **ANIMALU**

**P**rofessor Alexander O. E. Animalu is an Emeritus Professor of Physics at the University of Nigeria. He is a former President of the Nigerian Academy of Science, former Director of the National Mathematical Centre, the 1990 Ahiajoku lecturer and a recipient of the Nigerian National Order of Merit (NNOM) for Basic Science in 2000 – Nigeria's highest award for intellectual and academic achievement, and Member of Honorary Presidential Adviser on Science and Technology.

His PhD thesis work conducted at the Cavendish Laboratory, University of Cambridge in 1965 and subsequently published in the Philosophical Magazine became a citation classic by 1983, having been cited more than 729 times between 1965 and 2001. Two years ago (2013) the article was listed by Thomson Reuters (at number 13) among the Top 100 cited Philosophical Magazine articles of all time (between 1900 and 2010). It is of interest to note that the Philosophical Magazine is one of the oldest scientific journals published in English and was the journal of choice for such physics luminaries as Faraday, Joule, Maxwell, J.J. Thomson, Rayleigh and Rutherford.

Between 1966 and 1976, he held various academic positions in the United States at Stanford University, University of North Carolina, Chapel Hill; University of Missouri, Rolla; and Drexel University, culminating with an appointment as a research scientist at the Lincoln Laboratory, Massachusetts Institute of Technology (MIT).

His research at MIT led to the publication of the book entitled "Intermediate Quantum Theory of Crystalline Solids" by Prentice-Hall in 1977. An Indian edition was published in 1978 and was translated into Russian by the Russian Academy of Science in 1981, and the second edition was published in Nigeria by SNAAP Press (Enugu) in 2014.

Since 1976, he has been a Professor of Theoretical Physics at the University of Nigeria, where he pioneered solar energy research in Nigeria. His theory of high-temperature superconductivity called isosuperconductivity was published in the Hadronic Journal in 1991. He organizes an annual conference – the International Seminar on Theoretical Physics and National Development (ISOTPAND) – in collaboration with the National Mathematical Centre, Abuja and the International Centre for Basic Research, Abuja. Professor Animalu has authored the biographies of famous Nigerians in the sciences and humanities – Dr. Nnamdi Azikiwe (Political Science), Professor Chike Obi (Mathematics), Professor Kenneth Dike (History), Professor Samuel Okoye (Physics), Professor James Ezeilo (Mathematics), Emeritus Professor Chukwuedu Nwokolo (Medicine), Professor Ononogbu (Biochemistry), Professor Cyril Onwumechili (Physics), and Sir Emmanuel C. Ezekwesili (Education).





## Professor Iheanyichukwu Sylvester **IWUEZE**

**P**rofessor Iheanyichukwu Sylvester Iwueze was born on December 8, 1954 at Umudin, in Ikeduru LGA of Imo State, Nigeria. He had his primary education at All Saint's School Amaifeke, Orlu, Imo State, Nigeria between 1960-1966 and his secondary education at Saint Augustine's Grammar School, Kwerre, Imo State between 1967 – 1972. He has the following degrees: B.Sc. (First Class Hons.) in Statistics (1978) from the University of Nigeria, Nsukka, Enugu State; M.Sc. (1981) and Ph.D (1983) in Statistics both from University of Sheffield, England, with specialization in Time Series Analysis and Forecasting.

Professor I. S. Iwueze started his academic career as a Lecturer II at the University of Nigeria, Nsukka in 1984. In 1986, he transferred to Federal University of Technology, Owerri and rose to the rank of a Senior Lecturer in 1994. He went on a rescue mission at the Abia State University, Uturu between October, 2002 and 2007 and Renaissance University, Ugbawka, Enugu State between October 1, 2007 and February 2010. He rose to the rank of a full Professor of Statistics in 2007. On March, 2010 he returned to the Federal University of Agriculture, Umudike, University of Port Harcourt, Port Harcourt, Rivers State, Anambra State University, Uli.

At the Abia State University, Uturu he was the Head,

Department of Statistics (October, 2002-2007), Member, University Senate (October, 2002 – 2007), Member, Senate Business Committee (October, 2003 – 2007), Member, Institutional Review Board, Centre for Population Studies (April, 2006 – 2007), Chairman, Panel to investigate "A Plea to save Mass Communication Department from destruction" (March, 2006 – June, 2006) and Acting Dean, Faculty of Biological and Physical Sciences (20/04/06 – 05/05/06). At Renaissance University, Ugbawka, Enugu State, he was the Dean, College of Natural and Applied Sciences (October 1, 2007 – December 29, 2008), Acting Vice Chancellor (February 9, 2009 – March 1, 2010). On his return to Federal University of Technology, Owerri in 2010, he was appointed the Head of Department of Mathematics, a position he held until June 30, 2014. Between July 1, 2014 and June 30, 2016 he served as the Director of Centre for Human Resources Development and he is currently the Director of Academic Planning, Federal University of Technology, Owerri. He is a member of Department of Statistics



Board of Studies, School of Physical Sciences Board and a member of Senate, Federal University of Technology, Owerri.

He has served as external examiner to Department of Mathematics, The Polytechnic, Calabar (1987/88, 1988/89, 1989/90), Department of Statistics, Nnamdi Azikwe University, Awka (2002/2003, 2003/2004, 2004/2005) and Department of Mathematics, Statistics and Computer Sciences, University of Port Harcourt, Port Harcourt (2002/2003, 2003/2004, 2004/2005). He is currently the external examiner to the University of Calabar, Cross River State, Cross River State University of Science and Technology, Federal University of Agriculture, Makurdi and Federal University of Agriculture, Abeokuta.

Professor I.S. Iwueze has published over 50 scientific papers in learned Journals, at least Five Conference Proceedings and one Textbook. He has successfully supervised fourteen Ph.D. and several M.Sc. degrees. He pioneered the Buys-Ballot procedures for estimation, test for seasonality and choice of model for decomposition in descriptive time series analysis, the paradox of the Duality between the Autoregressive (AR) and Moving Average (MA)

processes, use of higher order moments to discriminate between white noise series and other series with similar characteristics among others.

He also had various academic prizes and awards to his cred. These include: University of Nigeria, Nsukka 'Foundation Scholar' (1975 – 1978), Federal Government of Nigeria Merit Award Scholarship (1976 – 1978) and Commonwealth Scholarship Award Tenable in the United Kingdom (1980 – 1983).

He belongs to many professional bodies which include American Statistical Association, Nigerian Mathematical Society, Science Association of Nigeria and Nigerian Statistical Association, Statistics Research Group, University of Benin among others.

As a community development activist, Professor Iwueze was a member of Mbari Club Finance Committee, Imo State Council for Arts and Culture (1987 – 1990), Treasurer, Umuduruonyeoma Social Club of Nigeria, Umudim (1994 – 2006) and he is a member, Council of Chiefs, Umudim, Ikeduru L.G.A., Imo State (1991–Date). He is married with four children.



**WATCH  
OUT!**

*Next issue of Notices  
"Mathematics in Nigeria"*

**PROFESSOR**  
**Felix Famoye**



Felix Famoye is a professor and a consulting statistician in the Department of Mathematics at Central Michigan University in Mount Pleasant, Michigan, USA. He is currently a Fulbright Fellow at the University of Lagos, Lagos, Nigeria. He received his B.Sc. (First Class Hons) degree in statistics from the University of Ibadan, Ibadan, Nigeria. He received his Ph.D. degree in statistics from the University of Calgary under the Canadian Commonwealth Scholarship. He is the co-author of the books “*Lagrangian Probability Distributions*”, “*Statistics for Biological and Health Sciences*” and “*Applied Statistics: Regression and Analysis of Variance*.” In 2009-10, he was a Fulbright Fellow at the University of Lagos, Lagos, Nigeria. He is a recipient of the Carnegie Corporation of New York Fellowship Award. Also, he is a recipient of the College of Science & Technology Outstanding Teaching Award, College of Science & Technology Award for Outstanding Research, Central Michigan University Excellence in Teaching Award, and President's Award for Outstanding Research and Creative Activity. He is an elected member of the International Statistical Institute. He is a Fellow of the American Statistical Association. He is an Editor-in-Chief of the *Journal of Statistical Distributions and Applications*.

## SHORT ABSTRACT

### Global Warming and Statistical Modeling

by Felix Famoye

Department of Mathematics, Central Michigan University, Mt. Pleasant, Michigan, USA  
Currently a Fulbright Fellow at the University of Lagos, Akoka-Yaba, Lagos

A majority of scientists and others now agree that the earth's climate is warming, as indicated by a rise in the average surface temperature of the earth. The 2001 Intergovernmental Panel on Climate Change (IPCC) third assessment report defines climate change as a change in the state of the climate that can be identified through statistical tests by changes in the average and/or the variation of climate properties that can persist over a given period of time.

Detection of climate change is the process of showing that climate has changed in some statistical sense, without providing reason for the change. Attribution of causes is the process of presenting the most likely causes for the detected change with a certain level of confidence. The result of various statistical analyses in the past several years is that climate change cannot be explained by natural forces alone. These studies concluded that a substantial anthropogenic (human induced activities) influence is needed in order to explain the observed changes, IPCC Assessment Reports. There is a notable lack of geographic balance in data and literature on observed effects of global warming. Observed data from all continents and many oceans shows that many natural systems are being affected by regional climate changes, particularly temperature

increases. To respond to climate change, we need to adapt. The IPCC reports provide some of mitigation technologies and adaptations.

In developing statistical models of global warming, both linear (multiple regression) and non-linear (generalized linear models) approaches are widely used. Some of the statistical distributions employed include the Weibull, log-normal, generalized Pareto, and extreme value distributions. Some of the roles of physical and mathematical scientists in global warming are (a) conducting research and developing models to (i) detect and attribute causes, (ii) determine the impacts of global warming, and (iii) combat the effects of global warming; and (b) educating the public on causes, impacts and how to combat global warming.

Nigerian Mathematical Society should lead the efforts on the above roles and also to influence the Federal government to increase its support for research on global warming and to increase public awareness and consciousness of this threat. A greater investment in research to improve weather and climate models is needed. This type of research requires more powerful computing facilities, and more observed data to identify and predict the effects of global warming on the weather in different regions and in Nigeria as a whole.

**DR. OLORUNSOLA E.  
OLOWOFESO**

Dr. Olowofeso is a Deputy Director of Statistics at the Central Bank of Nigeria, and Head of Statistical Systems Management Division. He is presently an Executive Member of the Irving Fisher Committee on Central Bank Statistics, Bank for International Settlement, Basel, Switzerland. He is the current Editor

of the CBN Journal of Applied Statistics. Olowofeso has also reviewed several scientific journal articles in Statistics Techniques, Big Data and Statistical Computing, Financial Time Series, Econometrics in Monetary and Financial Statistics both within and outside Nigeria. He leads a highly technical team to manage CBN Statistics Database and Statistics methods units. Dr. Olowofeso had presented many scientific and technical papers at several conferences and has served in various capacities as moderator at some of these international conferences. Olowofeso have in-depth knowledge in the use of Computer for data acquisition and analysis, graphic presentation and report preparation. Olowofeso used this knowledge to author and co-author several scientific journals published both within and outside Nigeria. He has considerable research experience in the field of Time Series Analysis and Forecasting, Data depth, Econometric Modeling, Statistical Computing, Economic analysis, Project Management and Evaluation, Survey Techniques, Operations Research and Non-parametric Statistics.

Prior to his current position, Olowofeso was an Associate Professor of Statistics at the Federal University of Technology, Akure, Ondo State. He has about 24 years working experience both within and outside Nigeria.

He holds graduate and postgraduate degrees in Mathematics, Statistics, Economics, and Statistics from Ondo State University, Ado Ekiti; University of Ibadan, Ibadan, Nigeria, and Federal University of Technology, Akure, Nigeria.

Olowofeso has excellent human relations and organization skills and he enjoys bringing people from different disciplines together to work on multidisciplinary research projects.

**S H O R T A B S T R A C T**

## Mathematics as a Panacea for Agricultural Development and Sustainable Growth in Nigeria

Statistics Department, Central Bank of Nigeria

by **O.E. Olowofeso**

Nigeria relied largely on agriculture for sustainable growth and development in early 60s, but relegated this important resource to the background due to the discovery of oil in the 70s. Part of the initiative to reposition agriculture and economic growth is to ensure efficiency throughout agriculture value chain, by producing more output from the same acre of land while reducing the negative environmental externality. In this paper, the knowledge of mathematics in achieving enhanced agricultural development and viable economic growth were discussed. The potential benefits of using good practices as well as the likely synergies and tradeoffs that might arise if the practices are used in right combination in a farm system were also articulated. The paper equally highlighted the

knowledge gaps and areas where greater research are needed to help inform future decisions and to stimulate agricultural growth along the sustainability trajectory. It was showed that in Q4 2016 agriculture contributed N4,662 billion to GDP when compared with ₦4,481.26 billion in Q4, 2015, representing 25% of total GDP. The estimated output of major agricultural commodities showing the area planted (million hectares) with the corresponding production ('000 tonnes) were presented. It was stressed that filling those gaps will require some innovative approaches in the realms of resilience thinking, complex systems science and management as applied to agro-ecosystems. Further, it was emphasized that a better understanding of some mathematical tools



## PROF. ANANDE RICHARD KIMBIR



Born on 10<sup>th</sup> of February 1958 in Tse-Teeweghsha, in Mbagenia Kindred of Kpav, Shitile, Benue State, Nigeria Prof. Anande Richard Kimbir graduated with a B.Sc. First Class (Hons) Degree in Mathematics after his Primary and Secondary education. In 1991, he bagged his Doctor of Philosophy (Ph.D) in

Mathematics at the Premier University of Ibadan within record time. Anande Kimbir picked up appointment as Graduate Assistant with the University of Technology Makurdi in December 1983. He was a part-time lecturer in the Department of Mathematics/Computer Science, Benue State University, Makurdi from 1997 to 2012 and while on sabbatical, he lectured at the Nassarawa State University, Keffi, August, 2007 to December, 2008. He was also a visiting Professor at the Modibbo Adama University of Technology, Yola between 2008 and 2017. By October, 2005 Richard was promoted to the Rank of Professor of Mathematics by the University of Agriculture Makurdi, where he still serves.

Prof. Kimbir's Administrative experience/service to University/Community is such that can only be summarized: He has held and served on various sensitive positions and committees in the University, including Deputy Dean, College of Science, Agricultural and Science Education, UAM, Dean of the same College, Head of Department at various points, Senate member, Member University Governing Council, Director, Directorate of Academic Planning etc. etc. He is currently, the Deputy Vice-Chancellor (Administration) University of Agriculture, Makurdi.

Prof. A.R. Kimbir is member, Nigerian Mathematical Society (NMS) and member, Nigerian Mathematical Association of Nigeria (MAN). His publications include (i) Principal Component Analysis (M.Sc. Thesis) University of Jos 1986, (ii) A Mathematical Model of the Transmission Dynamics of Human Schistosomiasis (Ph.D Thesis) University of Ibadan 1977, and over 30 contributions in Books/learned Journals.

Prof. A.R. Kimbir is a devout Christian and is a Knight of Saint Mulumba in the Catholic Faith and is happily married and blessed with six (6) children.

### SHORT ABSTRACT

## Mathematical Epidemiology: A Veritable Tool for Disease Control, with Special Reference To HIV/AIDS

by A. R. Kimbir

Department of Mathematics, University Of Agriculture, Makurdi, Benue State, Nigeria

The main theme for 2017, Conference of the Nigerian Mathematical Society (NMS) is **Mathematics as a tool for Agricultural Development and Economic Growth in Nigeria**. At a glance, it may be difficult to see clearly the connection between Mathematics and Agricultural development and economic growth. However, when one views the effect of human diseases, e.g. HIV/AIDS, in depleting human populations, which are necessary in Agricultural activities, and the importance of mathematical modelling in the control/eradication of such diseases, then one can clearly see the connection.

The Acquired Immune Deficiency Syndrome (AIDS) is a retroviral disease discovered by the Centre for Disease Control (CDC) in the United

States in 1981 (CDC, 1982), with blood as the main route of transmission. Those at risk include homosexuals and heterosexuals, persons receiving blood transfusions, intravenous drug abusers and children born to mothers who are at high risk of AIDS.

Infection with Human Immunodeficiency Virus (HIV), the causative agent of AIDS, is expressed in various clinical manifestations, ranging from asymptotic (never developing AIDS) infection to severe degenerations of the central nervous system, or profound immunodeficiency with life threatening secondary diseases or cancers (Fauci, *et al*, 1985).

The biological background, including the epidemiological parameters of the disease, has



been discussed: see, for example, Anderson and May (1991). Like other sexually transmitted diseases, HIV can be controlled by the following methods: (i) Education on behaviour change, (ii) Use of barrier contraceptives, (iii) Random screening, (iv) Contact tracing, and (v) Antiretroviral Therapy.

Mathematical models can help health workers understand and predict the spread of an epidemic, and evaluate the potential effectiveness of the different control measures to be used. They can improve our understanding of the relationship between the social and biological factors that influence the spread of a disease. Information obtained from models can be used to set priorities in research, thus saving time, resources and lives.

Mathematical models for the transmission of HIV were formulated as far back as 1987 when Medley et al (1987) developed simple mathematical forms for the growth in the number of infected individuals who will ultimately develop AIDS and for the distribution of incubation period of those individuals. Other models have been formulated to study other aspects of the transmission dynamics of the infection; these are random screening,

contact tracing, use of the condom, etc. (see, for example, Hsieh, 1996; Hyman et al, 2003; Greenhalgh et al, 2001; Anderson and May, 1991).

In 2002, 1.6 million people were reported to have died from AIDS-related cases worldwide (UNAIDS, 2002). Nigeria has one of the most rapidly increasing rates in Africa probably because of her large population. Adult HIV prevalence was reported to increase from 1.8% in 1991 to 5.8% in 2001 (UNAIDS, 2002). The disease affects the sexually active population, which is also the population group that is active in Agricultural Production.

This paper gives an overview of mathematical epidemiology with special reference to mathematical models of the transmission dynamics and control of HIV/AIDS. A summary of research efforts in this direction by the author and collaborators is also presented. Finally, some suggestions are given on how to utilize the abundant research findings in this area of mathematics by relevant agencies of government to bring about rapid control/eradication of the infection.

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## Mathematics as a Panacea for Agricultural Development... (Contd from pg 22)

as well as economic and social drivers in collaboration with various farming approaches would greatly reduce the output gap in agricultural production. The importance of using novel software for agricultural experimentation and analysis, heavy investment in research and development, and collaboration with international

agencies and institutions were equally presented. Overall, the paper recommended effective capacity building to strengthen the most vulnerable group in agriculture with requisite knowledge and information needed for farmers to achieve optimal output that will boost local consumption as well as enhance agricultural exports.

# The Graduate Student Forum

**S**outhern Africa Mathematical Sciences Association (SAMSA) 2016 Conference is the annual conference of SAMSA. This year edition was hosted by the Department of Mathematics and Applied Mathematics, University of Pretoria, South Africa between 21 and 24 November, 2016. There are over 170 participants from North America, Europe and Africa countries and about 50% of these participants are graduate students. Several Nigerian academics and graduate students including the Editor in Chief of the Journal of the Nigerian Mathematical Society, Prof. S.S. Okoya were participants.

During the dinner and award night of the conference, two Nigerian graduate students won the **Best PhD Presentation Award**.

This award is in recognition of their contribution to knowledge, quality of presentation and mastery of the subject area. The awardees are:

(1) Mr. Okeke Chibueze Christian from the School of Mathematics, Statistics and Computer Science, University of KwaZulu-Natal, Durban, South Africa. He is currently studying for his PhD under the supervision of Dr. O.T. Mewomo.

(2) Miss Osaye Fadekemi Janet from the Department of Pure and Applied Mathematics, Mathematics, University of Johannesburg, South Africa. She is a currently studying for her PhD under the supervision of Prof. Peter Dankelmann

*~Dr. Oluwatosin T. Mewomo*

I, Miss. Osaye finished my first degree at the Federal University of Technology, Akure and a masters degree at African Institute for mathematical sciences, Ghana before completing a research masters degree at the University of KwaZulu-Natal, South Africa specialising in graph theory. I received the Southern Africa Association for the Advancement of Science (S2A3) Bronze Medal for original research at masters level for my masters dissertation. I am presently a PhD student at the University of Johannesburg, South Africa in the area of discrete mathematics with specialisation in graph theory and my supervisor is Professor Peter Dankelmann.



My name is Okeke Chibueze Christian. I obtained a Bachelor of Science in Pure and Applied Mathematics (Second class honors upper division) from the university of Nigeria Nsukka and I have further undergone and intensive M.Sc. program at the African University of Science and Technology Abuja Nigeria. I am currently doing my PhD in pure Mathematics (2<sup>nd</sup> year) at Department of Mathematics University of KwaZulu-Natal Westville Campus, South Africa. My area of research is Fixed Point and Applications. I have attended several conferences like Nigerian Mathematical Society (NMS), Southern Africa Mathematical Sciences Association (SAMSA) etc. and have also won several awards like Nelson Mandela Scholarship award, Best Ph.D presentation award at SAMSA Annual Conference 2016 and several others and also have written some articles which some are under review in some reputable journal of Mathematics.

I have an intense passion for imparting the knowledge I have gained so far to student, thereby making Mathematics more interesting than challenging.





## Conference & Meeting Photos Conference & Meeting Photos



Nigerian participants at the 2016 SAMSA International Conference dinner with Dr. 'Tosin Mewomo at the extreme left

Nigerian participants at the 2016 SAMSA International Conference dinner with Dr. 'Tosin Mewomo at the extreme left



Prof. S.S. Okoya (in tie) after an interactive session with Nigerian participants

Prof. S.S. Okoya (in tie) after an interactive session with Nigerian participants



The Editor-in-Chief and Dr. Tosin Mewomo with the Best Ph.D. presentation awardees



R-L: Prof. Abdul Aziz Yakubu, an invited speaker from USA at the 2016 SAMSA Conference; Prof. S.S. Okoya and another participant in diaspora



### *Conference & Meeting Photos*



The 2016 SAMSA annual conference participants at the University of Pretoria, South Africa November 21 – 24, 2016-





# **YOU'RE INVITED**

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all readers, from students  
to retired folks, to get more  
involved with Notices as  
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captions to the Editor,  
and so on:

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## ***Congratulations!***

*We the family of*

**PROFESSOR  
IHEANYICHUKWU  
SYLVESTER IWUEZE**

*Felicitate with our father and husband,  
On this great occasion of his*

**INVESTITURE AS FELLOW  
OF THE NIGERIAN  
MATHEMATICAL SOCIETY**

**FELICITATIONS!**



*With profound joy, we felicitate  
and celebrate our father and husband*

**PROFESSOR  
ALEXANDER O.E.  
ANIMALU**

*On the occasion of his*  
**INVESTITURE AS FELLOW  
OF THE NIGERIAN  
MATHEMATICAL SOCIETY**

*We wish you many more  
accomplishment in all your endeavours*

**Hearty Congratulations**



*We, the entire family of Professor J. A. Adepoju  
wish to heartily felicitate with our father and husband*

**PROFESSOR JEROME  
AJAYI ADEPOJU**

*On the occasion of his*  
**INVESTITURE AS FELLOW  
OF THE NIGERIAN  
MATHEMATICAL SOCIETY**

*This is an honour well deserved for your hard  
work and commitment to Mathematics cause.  
We pray for long life and sound health for  
you to reap more of your labour.*



**FOR SUPPORTING MATHEMATICS!**

## **Chief Ajibola Ogunsola**

He qualified as a Fellow of the Institute of Actuaries (FIA) of England in July, 1973. In 1974, he became a Fellow of the Royal Statistical Society of England (FRSS). Chief Ogunshola has been a Fellow of the Institute of Directors since 2004, Fellow of the Nigerian Institute of Public Relations (FNIPR), 1998. He was invested as a Fellow of the Nigerian Mathematical Society (FNMS) in 2016.

**To learn more about giving to the NMS  
and our beneficiaries, visit [www.nigerianmathematicalsociety.org](http://www.nigerianmathematicalsociety.org)  
or contact the President of NMS Professor N. I. Akinwande at [aninuola@gmail.com](mailto:aninuola@gmail.com)**

# BUK 2018



## NEXT NMS CONFERENCE HOLDS AT BAYERO UNIVERSITY KANO



On behalf of the Local Organizing Committee (LOC) of the forth-coming Nigerian Mathematical Society (NMS) Conference, Kano 2018, we wish to felicitate with the council members and the LOC of the Federal University of Agriculture, Makurdi on their successful hosting of the NMS conference for 2017. We wish you a successful deliberations.

We also congratulate the current NMS Council members and pray for God's wisdom to take the society to enviable height.

We look forward to seeing all the distinguished members of the NMS at BUK in 2018. The date of the conference will be communicated widely as soon as the council and the LOC meet to fix it.

**Dr. Bashir Ali**  
*Chairman LOC, BUK, 2018 &  
Head of Department*

**Ma'aruf Shehu Minjibir**  
*The Secretary,  
LOC, BUK 2018*

