CURRICULUM VITAE

# **Professor Aderemi Oluyomi Kuku**
Ph.D, FAMS (USA), FTWAS, FAAS, FAS (Nig), FNMS, FMAN, FASI, OON, NNOM

**I.**    <u>**Personal Details**</u>

        Date of Birth: March 20, 1941
        Marital Status: Married with four children
        Nationality:  USA/Nigeria.
        Sex: Male

**II**    CONTACT ADDRESSES:

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        NIGERIA: +234-70-56871969;    +234-80-62329855

**III.**    <u>**Positions held in the last 14  years**</u>

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|---|---|
| (a) Member, Institute for Advanced Study Princeton, NJ, USA. | Sept. 2003-Aug. 2004 |
| (b) Visiting Research Professor, MSRI-- (Math. Sci. Research Inst) Berkeley, CA, USA. | Aug-Dec, 2004 |
| (c) Visiting Professor, OSU (Ohio State Univ.) Columbus, OH, USA | 2005 |
| (d) Distinguished Visiting Professor, Miami University, Oxford, OH, USA | 2005 – 2006 |
| (e)  Visiting Professor, Universitat Bielefeld, Germany | 2006 |
| (f)  Visiting Professor, IHES, Paris, France | 2006 |
| (g) Visiting Professor, Max Planck Inst. Fur Mathematik, Bonn, Germany | 2007 |

(h) Distinguished Visiting Professor, National
     Mathematical Centre, Abuja, Nigeria.      2007
(i)  Visiting Professor, The University of
      Iowa, Iowa-City, USA                     2007-2008
(j)  Professor of Mathematics,
      Grambling State University, Grambling,
      LA 71245, USA                            2008-2009
(k)  William W. S. Claytor Endowed
      Professor of Mathematics
      Grambling State University,
      Grambling, LA 71245, USA.                2009-2014
(l)  Distinguished Visiting Professor, National
      Mathematical Centre, Abuja, Nigeria.
      Summer       2009, 2010,2011, 2012, 2013, 2014
(m) Distinguished Visiting Professor of Mathematics,
      IMSP—Institut demathematiques etde Sciences
      Physiques, Porto Novo, BeninRepublic,Nov/Dec,2015.
(n) Distinguished Professor of Mathematics,  National
      Mathematical Center, Abuja,  Nigeria,      2015-.


**IV.    Educational Institutions Attended (University Education)**

1.Makerere University College, Kampala, Uganda
   (then under special relationship with the University of London)       1962-1965


2.University of Ibadan, Ibadan, Nigeria                                  1966-1971


3Columbia University, New York City, USA (To write my Ph.D thesis)
 (Thesis written as a Visiting Scholar from Nigeria under Prof. Hyman Bass ).   1970-1971


**V.    Academic Qualification (with dates and granting bodies)**

1.B. Sc (Special- Honours) Mathematics, University of London              1965

2.M. Sc. (Mathematics), University of Ibadan, Nigeria.                    1968
   (Dissertation written under Professor Joshua Leslie,
   then at the University of Ibadan).

3.Ph.D. (Mathematics), University of Ibadan, Nigeria                      1971
   (Thesis written under Professor Hyman Bass of Columbia University, New York
    as a Visiting Scholar from Nigeria)


**VI.    Scholarships, Grants, and Prizes**

Won many subjects and proficiency prizes while in school

| | |
|---|---|
| African Scholarship programme of American Universities (ASPAU)- I declined this offer | 1962 |
| United States Agency for International Development (USAID Scholarship tenable at Makerere University College, Kampala, Uganda – (then under special relationship with University of London. | 1962-1965 |
| Shell-BP Proficiency Prize (Makerere) | 1963 |
| Mathematical Departmental Prize (Makerere) | 1964 |
| Travel fellowship awarded by US department of State | 1968 |
| AFGRAD Fellowship | 1970-1971 |
| Travel Award by "Deutsche Stiftung fur International Entwichlung" | 1980,'84 & '86 |
| Study Visit Award to Germany by the German Academic Exchange Services (DAAD) | 1981 |
| Canadian Research Council Grant | 1982,1993 |
| Third World Academic of Sciences (TWAS) Travel Grant | 1993 |
| Swedish Institute Research / Travel Grant | 1993 |
| Switzerland National Foundation Research Grant | 1996 |
| Max Planck Institute (Bonn) Research Grant | 1994, 2007 |
| Inst for AdvancedStudy, Princeton Research Grant | 2003-2004 |
| MSRI, Berkely California, Research.Grant | 1982, 2003 |
| Clay Mathematics Institute Fellowship | 2004 – 2005 |
| IHES Paris, France Research Grant | 2006 |

**VII.** <u>**Honours, Distinctions and Memberships in Learned Societies**</u>

| | |
|---|---|
| President, African academy of Sciences | 2014- 2017 |
| Honorary President, African Mathematical Union (AMU)(for life) | 1995- |
| President, African Mathematical Union | 1986-1995 |
| Fellow, TWAS,--The World Academy of Sciences--For the Advancement of Science in the Developing Countries | 1989- |
| Fellow, African Academy of Sciences | 1986- |
| Member, European Academy of Arts, Science & Humanities | 1986- |
| Fellow, Nigerian Academy of Science (Academy Secretary, physical Sciences, 1991-93) | 1989- |
| Foundation Fellow, American Mathematical Society (AMS) | 2012- |
| Fellow, Mathematical Association of Nigeria | 1987- |
| Foreign Fellow, Mongolian Academy of Sciences | 2005- |
| Distinguished Service and Achievement Award USA National Association of mathematician (NAM) | 1993 |
| Special Merit Award, Ogun State of Nigeria | 1987 |
| Member, International Mathematical Union Commission on Development and Exchange | 1986-1994 |

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|---|---|
| Member, Mathematics Advisory Committee International Centre for Theoretical Physics (ICTP), Trieste, Italy. | 1986-92 |
| Vice-Chairman, First Congress of African Scientists, Brazzaville, Congo | 1987 |
| Vice-Chairman, Scientific Committee, Organisation of African Unity (OAU) | 1987 |
| Member, Steering Committee, Pan-African Union for Science and Technology., Congo Brazaville. | 1987-90 |
| Member, Board of Trustees, Mathematical Association of Nigeria | 1988-94 |
| Dean, Postgraduate School, University of Ibadan | 1986-1990 |
| Chairman, Committee of Deans of Postgraduate Schools in Nigerian Universities | 1987-1990 |
| Chairman, UNESCO Committee of African Consultants Scientists, Dakar, Senegal | 1987 |
| Chairman, Science and Technology Committee, Pan-African Institute of International relation Geneva, Switzerland | 1988-95 |
| Vice-Chairman, Governing Council, International Centre for Mathematics and Physical Sciences, Porto-Novo, Benin Republic | 1989 |
| Member, UNESCO Advisory Committee of Expert Mathematicians | 1987 |
| Vice-President, Science Association of Nigeria | 1983-1994 |
| Member, Board of Directors, PRELUDE – programme Recherches et Liaison Universite et Development Namur, Belgium | 1990-1993 |
| Member, Governing Council, Institute de Recherches Mathematiques (IRMA), Abidjan, Cote D'Ivoire | 1993-97 |
| Member, International Advisory Committee, International Village for Science and Technology Dar es Salaam, Tanzania | 1990 |
| Head, Department of mathematics, University of Ibadan | 1983-1986 |
| Academy Secretary, Physical Sciences, Nigeria Academy of Science | 1990-1993 |
| Associate Editor (Algebra) Journal of the Nigerian Mathematical Society | 1984- |
| Member, Editorial Board, Journal of the Nigeria Mathematical Society | 1984-90 |
| Guest Editor, K-theory Journal | 1989,2003 |
| Member, Editorial Advisory Board, Afrika Matematika | 1986 -1995 2010- |
| Life Member National Association of Mathematicians, USA | 2010- |
| Member, Editorial Board, Nigerian Journal of Science | 1977-1981 |
| Honorary Citizenship, City of Huntsville, Alabama, USA | 1968 |
| Business Manager, Science Association of Nigeria | 1978-1981 |
| Member, American Mathematical Society | 1971- |
| Member, London Mathematical Society | 1995- |

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|---|---|
| Member, Mathematical Association of America | 1994- |
| Member, Nigerian Mathematical Society | 1979- |
| Member, International Committee, American Mathematical Society | 1993-98 |
| Chairman, Mathematics Section, Science Association of Nigeria | 1978-1981 |
| Member of Council, Nigerian Mathematical Society | 1985-1990 |
| Member of Council, Mathematical Association of Nigeria | 1987-1991 |
| Reviewer, Mathematical Reviews | 1991- |
| 1997 Distinguished Visitor, South African Mathematics Society | 1997 |
| Traditional Royal Title---Otunba Ofiran of Ijebu-land (Nigeria) | 1993 |
| African Mathematical Union (AMU) medal | 2000 |
| Virginia Chatelain (Endowed) Lecture, Kansas State University, Manhattan, KS, USA | 2007. |
| Member, International Advisory Committee, National Mathematical Centre, Abuja, Nigeria | 2008- |
| Nigeria National Honours—OON (Officer of the Order of the Niger) awarded by the President, Federal Republic of Nigeria | 2008- |
| Nigerian National Order of Merit – (NNOM)—the highest honour for Nigerian Academics—awarded by the President, Federal Republic of Nigeria. | 2009.- |
| William W. S. Claytor Endowed Professor of Mathematics Grambling State University, Grambling, Louisiana, U.S.A. | 2009.-2014 |
| Fellow, African Scientific Institute, (ASI) | 2010 |
| International Conference on Algebraic K-theory and Its Applications in honor of my 70$^{th}$ birthday organised by Nanjing University, Nanjing, China, March 17-21, 2011 | 2011. |
| Member, Editorial Board, American Journal of Mathematics and Statistics | 2011 |
| Editor, IMHOTEP--Journal African de Mathematiques Pures et Appliques | 2012 |
| Editor, Studies in Mathematical Sciences | 2012 |
| Editorial Adviser, South Pacific Journal of Pure and applied Mathematics | 2012 |
| Special Issue of the Journal of K-theory-(Published by Cambridge University Press, UK) Volume 12, No 1, 2013 in my honor as Proceedings of the International Conference on 'Algebraic K-theory and its Applications' held at Nanjing University China March 17-21, 2011 in honor of my 70$^{th}$ birthday. | 2013. |
| Foundation Fellow of the Nigerian Mathematical Society, (FNMS) | 2015. |

**VIII.     Further Honors and Distinctions**

   A)     Invitation by Universities/Research Institutes to give Colloquia and Seminar Lectures

I have given invited colloquium and seminar lectures at Universities/Research Centres in **Europe**, **USA**, **Canada**, **Asia**, **West Indies** and **Africa. USA**: University of California, Berkeley, 1992; Columbia University, New York, 1971, 1993; Cornell University, Ithaca, 1982,

1993; University of Chicago, Chicago, 1975, 82, 92, 2004; Dartmouth College, Hanover, New Hampshire, 1993, 2001, 2004; University of Illinois, Urbana-Champaign, 1975, 82; University of Iowa, Iowa City (2002, 2007); Institute for Advanced Study (IAS), Princeton, NJ, 2004; University of Michigan, Ann-Arbor, 1992; Michigan State University, East Lansing, 1992; Howard University, Washington DC, 1982, 94, 2003; Louisiana State University, Baton Rouge, 2012;University of Oklahoma, Norman, (Karcher Lecturer) 1982, North-western University, Evanston, 1975, 1982; North Dakota State University. Fargo, 1994; Kansas State University, Manhattan,(Virginia Chatelain Endowed Lecture) 2007: Ohio State University, Columbus, 2003, 2005; Penn State University, University Park 1993, 2004; Rutgers University, New Brunswick, NJ, 2004; State University of New York, Binghamton 1993; University of Wisconsin, Madison, 1992; New Mexico State University. Las Cruces.1996;University of Texas at San-Antonio,(2006), Miami University, Oxford, OH, 2005; Atlanta University Centre, 1993, Yale University, New Haven, 1993. **Germany:** Universities of Bielefeld, 1978, 80, 81, 84, 90, 94, 97; Munster, 1981, Perdabour, 1980; Max-Planck Institute fur Mathematik, Bonn, 1994, 2007, **France:** Universite Louis Pasteur, Strasbourg, 1998; Universite Paris VII, Paris 1998; **Poland:** University of Poznan, Banach Centre, Warsaw, 2002; **Sweden:** Universities of Goteborg, Uppsala, Lund; Mitag-Leffler Inst. Stockholm – all in 1993. **United Kingdom:** Universities of Warwick, 1982, London, 1981; Sussex, 1995; Edinburgh, 1995; **Holland:** University of Nijmegen, 1994, **Russia:** Moscow State University, 2005; **Switzerland:** University of Lausanne, 1996; SLOVENIA:University of Ljubljana, 1999. **Canada:** Queen's University Kingston Ontario, 1982, 1993, University of Western Ontario, London, Ontario, 2001; **Hong Kong:** University of Hong Kong, 1993; **Italy:** University di Genova 1996; University di Trieste, 1998, SISSA, Trieste, 1998, **Singapore:** University of Singapore, 1985, **China:** Institute of Maths/Systems Science, Chinese Academy of Science, Beijing, 1993; East China Normal University Shanghai, 1993; Northwestern Polytechnical University of Xian, 2002; Nanjing University, 2002; Tongji University, Shanghai, 2002; **India:** Indian Statistical Institute, Delhi, 2002; **Mexico**, Instituto de Matematicas, Unidad Morella, (2005); ARGENTINA, University of Buenos Aires (2013); **Iran:** Sheriff University of Technology, Tehran, 2000; **West Indies:** University of West Indies at Kingston, Jamaica, 1993: PAPUA NEW GUINEA: University of Technology, LAE. 2013. **West/Central/East Africa:** Universities of Abidjan, Cote d'Ivoire, 1986, 1987, 90, 95; Dakar, Senegal, 1987, 89; Ouagadougou, Burkina Faso, 1997; Yaoundé, Cameroon, 1990, 92; Brazzaville, Congo, 1987, 89; Nairobi, Kenya, 1986, 91; and Several Universities in Nigeria. **South Africa:** Universities of Cape Town, Port Elizabeth, Stellenbosch, Pretoria; University of Natal, Pietermaritsburg; University of Witswatersrand , Johannesburg; University of Western Cape, Bellville, University of the North, Pietersburg; University of the Free State, Bloemfontein; Rand Afrikaans University, Johannesburg, Rhodes University, Grahamstown. – all in 1997.

B) **Special Invited Addresses by Mathematical Societies**

1. Joint American Mathematical Society (AMS); Canadian Mathematical Society, (CMS); Mathematical Society of America (MAA), and USA National Association of Mathematicians (NAM); - invited Address, Vancouver, 1993

2. Hong Kong Mathematics Society Annual Lecture, 1993

3. Invited Address at the 125th Anniversary Celebrations of the Finish Mathematics Society, Helsinki, Finland, December, 1993.

4 NAM (USA National Associations of Mathematicians) Claytor-Woodward invited address given at the Joint Mathematics Meetings, Boston, Massachusetts, USA, January 2012.

**IX.     Details of Positions Held At University Level**

a)      Positions held in Nigeria

| | |
|---|---|
| 1.Assistant Lecturer in Mathematics, University of Ife, | 1965-1967 |
| 2.Lecturer in Mathematics, University of Ife | 1967-1968 |
| 3.Lecturer in Mathematics, University of Ibadan | 1968-1976 |
| 4.Senior Lecturer in Mathematics, University of Ibadan | 1976-1980 |
| 5.Sub-Dean (Postgraduate) Faculty of Science University of Ibadan | 1978-1980 |
| 6.Reader in Mathematics, University of Ibadan | 1980-1982 |
| 7.Full Professor of Mathematics, University of Ibadan | 1982-2002 |
| 8.Head, Dept. of Mathematics, University of Ibadan | 1983-1986 |
| 9.Dean, Postgraduate School University of Ibadan | 1986-1990 |
| 10.Chairman, Committee of Deans of Postgraduate School in Nigerian Universities | 1987-1990 |

b)      Permanent Position held outside Nigeria

Full Professor of Mathematics, International Centre for Theoretical Physics (ICTP)  Trieste, Italy (A United Nations Research Centre in Mathematics and Physics under UNESCO).          1995-2003

(Note: I had to retire in 2003 at the UNESCO mandatory age of 62 )

c)      Visiting Positions Outside Nigeria

| | |
|---|---|
| 11.Visiting Scholar, Columbia University, New York, USA | 1970-1971 |
| 12.Visiting Assistant Professor, Columbia university New York, USA | 1971 |
| 13.Post-Doctoral Visitor, University of Chicago, Chicago, USA | 1974-1975 |
| 14.Visiting Professor, Univ. Bielefeld, Germany, Summer1980; Fall 1981; Summer 1985; Fall 1990; Summer1994, Fall 2006. | |
| 15.Visiting Professor, University of Illinois at Urbana – Champaign, USA, Second Semester | 1982 |
| 16.Visiting Professor, Queen's University, Kingston Ontario, Canada Summer 1993 Summer | 1982 |
| 17.Visiting Professor, Mathematical Sciences Research Institute (MSRI), Berkeley, California, USA.   Fall | 1992 |
| 18.Visiting Professor, Cornell University, Ithaca, New York, USA Spring Semester | 1993 |
| 19.Visiting Professor, University of Hong Kong (Summer) | 1993 |
| 20.Visiting Professor, Institute of Mathematics/Systems Science, | |

| | |
|---|---|
| Chinese Academy of Sciences, Beijing, China (Summer) | 1993 |
| 21. Visiting Professor, Chalmers University of Technology and the University of Goteborg, Goteborg, Sweden (Fall) | 1993 |
| 22. Visiting Professor, Mittag-Leffler Institute, Stockholm, Sweden | 1993 |
| 23. Visiting Professor, Howard University, Washington DC, USA, Spring Semester | 1994 |
| 24. Visiting Professor, Max-Planck Institute fur Mathematik, Bonn, Germany | 1994, 2007 |
| 25. Member, Institute for Advanced Study, Princeton, NJ, USA | 2003-2004 |
| 27 Visiting Research Professor, MSRI—Mathematical Sciences Research Institute, Berkeley, CA | Fall, 2004 |
| 28 Visiting Professor, Ohio-State Univ. Columbus, OH 43210 | 2005 |
| 29 Visiting Professor, African Institute for Math Sciences, (AIMS) Capetown, South Africa. | 2005 |
| 30. Distinguished Visiting Professor, Miami University, Oxford, OH,USA | 2005-2006 |
| 31 Visiting Professor, IHES (Institut Des Hautes Etudes Scientifique, Paris, France, | 2006 |
| 32 Visiting Professor, University of Iowa, Iowa City, USA | 2007-2008 |

**X.** **Some Highlights of Administrative and organizational Experience**

As Head of the department of Mathematics, University of Ibadan, 1983-1986, I caused our undergraduate and post graduate programmes to be overhauled and initiated postgraduate programmes in industrial mathematics. etc.

As Dean of Postgraduate School, University of Ibadan 1986-1990, I was responsible for the organisation, coordination and improvement of postgraduate training and research throughout the University. In this capacity. I initiated various new programmes, succeeded in generating more funds for the school, created a "Forum for interdisciplinary Discourse" streamlined the regulations of the school, improved the format of presentation of results, etc. The Postgraduate School had over four thousand graduate students, 1030 academic staff—spread over nine faculties, one college and three Institutes, with Ph.D programs in all faculties as well as Master's degree programs –both academic and professional. I was the Chairman of the Board of the School consisting of all Deans of faculties, all Heads of Departments, all Sub-Deans Post-Graduate in the faculties and all Faculty Representatives.

As Chairman of the Committee of Deans of Postgraduate Schools in Nigerian Universities for three years (1987-1990), I spearheaded the harmonization of standards and quality of programs, as well as overall improvement of postgraduate education and research in Nigerian Universities.

As President of the African Mathematical Union (AMU) for nine years, (1986-1995), I was responsible for organizing and coordinating various mathematical activities all over the continent of Africa. During my tenure, I created four Commissions- AMU Commission on Mathematics Education, AMU Commission on Pan-African Mathematics Olympiad, AMU Commission on History of Mathematics in Africa, and AMU Commission on Women in Mathematical in Africa. I also created a Pan-African Mathematical Sciences Network involving sixteen selected Universities/Research Centres in Africa with the aim of enhancing

graduate training and research as well as co-operation North – South and -South. I also generatedfunds from various sources to organize subregional and regional activites .

I was a Vice-Chairman of the First Congress of African Scientists, which, in 1987, created the Pan-African Union for Science and Technology and I have since made several contributions to the development of Science and Technology all over Africa.

As a member of the International Mathematical Union Commission on Development and Exchange for eight years (1986-1994), I made contributions on the development and exchanges in mathematical research in the developing countries, and other parts of the world.

At the International Congress on Mathematics Education in Quebec, Canada in 1992, I was the organizer of the sessions on "Undergraduate Mathematics Education for Specialists, Future Researchers and Mathematics teachers" Also, at the International Congress of Mathematics Education at Seville, Spain, in July 1996; I was co-organiser of a working Group on "International Cooperation in Mathematics Education.

I have organized or co-organised several International Conferences/School Symposia/Congresses, e.g. I have been:

1. Chairman, Organising Committee, International Workshop on group Representation and its Applications, Ibadan, Nigeria 1981

2. Chairman, Organising Committee, International Symposium on Mathematical Modelling, Ibadan, Nigeria, 1984

3. Chairman, Organising Committee, Second Pan-African congress of Mathematicians, Jos, Nigeria, 1986

4. Chairman, Organising Committee, International School/Symposium on Algebraic K-theory and its Applications, Ibadan, Nigeria, 1987

5. Vice-Chairman, Organising Committee, First Congress of African Scientists, Brazzaville, Congo, 1987

6. Chairman, Organising Committee, Foundation Postgraduate courses in Algebra, (organised for National Mathematical Centre, Abuja) Ibadan, Nigeria, 1987

7. Chairman, Organising Committee, International Symposium on Current Research Trends in Mathematics, Computer Science and Mathematics, Physics, Arusha, Tanzania, September, 1989

8. Chairman, Organising Committee, Second Foundation Postgraduate Courses in Algebra, National Mathematical Centre, Abuja Nigeria, June, 1992.

9. Chairman, Organising Committee, Third Pan-African Congress of Mathematicians, Nairobi, Kenya, August, 1991.

10. Organiser, Sessions on Undergraduate Mathematics Education for Specialists, Future Researchers, and Mathematics Teachers, at the International Congress on Maths Education Quebec, Canada, August, 1992.

11. Chairman, Organising Committee, International Symposium on "Mathematics Education in African for the twenty first century: Cairo, Egypt, September, 1992

12. Chairman, Organising Committee, International Symposium on "Current Research Trends in Mathematics, Computer Science and Mathematics Physics", Port-Novo, Republic of Benin, January, 1993, Ibadan, Nigeria, January 1994

13. Chairman, Organising Committee, Fourth Pan-African Congress of Mathematics, Ifrane, Morocco, September, 1995

14. Co-organiser, Working Group on "International Cooperation on Mathematics Education" at the Eight International Congress on Mathematics Education, Seville, Spain, July, 1996.

15. Local Organiser, ICTP School on "Numerical Simulation of Partial Differential Equations, September, 1996

16. Director, ICTP Workshop/Symposium on "Algebraic K-theory and Applications" held in September, 1997.

17. Member, Scientific Committee, International Conference on "Quantum Field Theory, Non-Commutative Geometry and Quantum Probability", Trieste, March 2001.

18. Member, Scientific Committee, Workshop on Algebraic Geometry and Strings - K-theory, Derived Categories and Strings, Genova, Italy, June 18-21, 2002.

19. Director, ICTP School and Conference on "Algebraic K-theory and its Applications", August 2002.

20. Organiser: International conference on "Algebraic K-theory and its Applications", Safi, Morocco, July 25-30, 2004.

21. Co-organiser, International Workshop on "Representation theory in Geometry and Physics" IMSP, PortoNovo, Benin Republic, August 1-17, 2005.

22. Director, School and Conference on 'Algebraic K-theory and its Applications' ICTP, Trieste, Italy, May 14 to June 1, 2007.

23 Organizer, Workshop on "Introduction to Index Theory via K-theory and C*-Algebras with application to physics" at the National Mathematical Center (NMC) Abuja, Nigeria, June 27 to July 7, 2011.


**XI.** **Some Other Miscellaneous Information including Teaching Experience**

i) I have served as External Examiners to various Universities including: University of Benin, Obafemi Awolowo University, Ahmadu Bello University, Ogun State University - all in Nigeria; University of Yaoundé, Cameroon; University of Abidjan, Cote D'Ivoire; Fourth Bay College and Njala University College, Sierra Leone, University of West Indies, Kingston, Jamaica.

ii) By now, I have taught the major areas of fundamental mathematics: Pre-Calculus, Calculus, Abstract Algebra, Linear algebra, Real Analysis, Complex Analysis, Geometry and Topology and Operations Research. I have written a book "Abstract Algebra" suitable for honours undergraduate and beginning graduate students. I have also taught graduate courses on various topics including: Algebraic K-theory, Commutative Algebra, Algebraic Topology, Algebraic Number Theory, Homological Algebra, Category Theory, Algebraic Geometry, Differential Geometry and Representation Theory and Non-commutative Geometry. My most recent research book "Representation Theory and Higher algebraic K-theory" xxvii + 442 page published in 2007 by Chapman and Hall is suitable for use by Researchers and giving advanced graduate course in the field. By now, I have about 50 years of University teaching and research experience.

iii) In the USA, I have taught undergraduate and graduate courses at Columbia University, New York (Summer School) (1971); University of Illinois, Urbana Champaign (Jan.-May, 1982); Cornell University, Ithaca (Jan.-May, 1993); Howard University, Washington DC (Jan.-May, 1994).,Miami University, Oxford, Ohio, (2005-2006), the University of Iowa, Iowa City, (2007-2008). and at the Grambling State University, Grambling,LA,

iv) I have supervised nine M.Sc/MPhil research projects, two Ph.D's and seven ICTP Diploma projects. (Note: ICTP Diplomas are equivalent to M.Sc/M.Phil) . I also supervised and mentored many Post-Docs and mathematicians from Nigeria, Africa, China, India, Latin America and all over the world during my nine-year tenure as a Professor at the International Centre for Theoretical Physics (ICTP) Trieste, Italy (See pages 34/35 of

this CV).

v) I have served on interview panels to appoint Mathematics Staff to various Universities and Polytechnics in Nigeria.

vi) I have rendered numerous services on Boards and Committees at the University of Ibadan, including Appointments and promotions Committee, Development Committee, Committee of Deans, Publications Committee etc. I served almost continuously as a member of University of Ibadan Senate from 1976 to 1994.

**XII.** **Major International Conferences Attended (With Papers Read)**

1. USA National Science Foundation Conference on Class Groups of Orders and Group-rings held at Northfield, USA, July 1975. **Invited Paper Read:** Whitehead groups of orders in p-adic algebras

2. Summer meeting of the American Mathematical Society held at Kalamazoo, Michigan USA, August 1975.

3. International Conference on Algebraic K-theory held at Mathematisches Forschungsinstitut, Oberwolfach, Germany, July 1976. **Invited Paper Read:** Some finiteness results in the K-theory of orders in p-adic algebras.

4. International Conference on Algebraic K-theory held at Northwestern University, Evanston, Illinois, USA, January 1976. **Invited Paper Read**: $G_n$ of finite rings and $SK_n$ of Orders.

5. International Conference on "Orders and their Applications" held at Mathematisches Forschungsinstitut, Oberwolfach, Germany, August 1980. **Invited Paper Read:** $SG_n$ of Orders and Group-Rings.

6. International Conference on Algebraic K-theory held at Mathematisches Forschungsinstitut, Oberwolfach, Germany, July 1980. **Invited Paper Read:** A convenient setting for Equivariant Higher Algebraic K-theory.

7. The 93$^{rd}$ meeting of the American Mathematical Society together with Emmy Noether Symposium held at Bryn Mawr College, Pennsylvania, USA. March 16-19, 1982, **Invited Paper Read:** The Cartan map for equivariant higher Algebraic K-groups.

8. Annual Conference of the Canadian Mathematical Society held at Carleton University, Ottawa, Canada, June 1992.

9. International Conference on "Algebraic K-theory, Geometry and Number Theory", at Universitat Bielefeld, Germany, July 26-31, 1982. **Invited Paper Read:** "Equivariant K-theory and the Co homology of profinite groups".

10. American Mathematical society Summer Research Conference on "Applications of Algebraic K-theory to Algebraic Geometry", at University of Colorado at Boulder, Colorado, USA: June 1983. **Invited Paper Read:** K-theory of Group-rings of finite groups over maximal orders in division algebras.

11. Conference of Directors (Heads) of Mathematics Institutes in African Universities held at Yaoundé, Cameroon, September 26-30, 1983.

12. International Conference on Algebraic K-theory held at Mathematisches Forschungsinstitut, Oberwolfach, Germany May 17 – June 2, 1984. **Invited Paper Read:** $K_n$ and $SK_n$ of integral group-rings and orders.

13. International Conference on Orders and their applications held at Mathematisches Forschungsinstitut, Oberwolfach, Germany, June 3-9, 1984

14. Singapore Topology Conference, National University of Singapore, June 10-15, 1985. **Invited papers read**: Higher K-theory of groups-rings and orders in Algebra over number fields.

15. Second Pan African Congress of the African Mathematical Union University of Jos, Nigeria, March 23-29, 1986. Invited paper read: Mathematical Research in Africa: Problems and Prospects.

16. International Congress of Mathematicians, University of California, Berkeley, August, 3-19, 1986.

17. International Symposium on Group Theory and its Applications, University of Abidjan, Cote D'Ivoire, July 1986. **I gave four invited lectures** on "Axiomatic Representation of Finite groups.

18. Southern Africa Mathematical Science Association (SAMSA) Symposium on Mathematics and Mathematics Education, University of Lesotho, Lesotho, December 1986. **Invited Paper Read:** Some recent developments in Algebraic K-theory.

19. International Symposium on Algebra and Algebraic Geometry, University of Abidjan, Cote D'Ivoire, December 29-January 10, 1987. **I gave four invited lectures** on Algebraic K-theory.

20. USA-Japan Seminar on Applications of Algebraic K-theory to Algebraic Number theory and topology, East –West Centres, Honolulu, Hawaii, USA, January 12-16, 1987.

21. ICMI Symposium on Mathematics as a Service Subject, International Centres for Mechanical Science, Udine, Italy, April 4-10, 1987. **Invited Paper Read:** Mathematics and Computer Science Education in African. Yamousoukro, Cote D'Ivoire. **Invited Paper Read**: Mathematics as a service subject - The African Experience.

22. International Symposium on re-structuring Mathematics and Computer Science Education in African. Yamousoukro, Cote D'Ivoire. **Invited Paper Read**: The status and preparation of mathematics researchers and teachers in Africa.

23. First Congress of African Scientists, Brazzaville, Congo, June 25-30, 1987. **Invited paper read**: Mobilisation and Production of Basic Scientists for the Development of Africa.

24. Societe Mathematique de France Colloquium on "Mathematics a Venier" Paris, December 9-11, 1987, **Invited Paper Read:** Co-operation in Mathematics Between France and African countries.

25. African Academy of Sciences (AAS) Conference on the Networking of the African Scientific Organizations.

26. International Conference on 'Orders and their Applications', May 29-June 4 , 1988 , **Invited Paper Read:** Some finiteness results in the higher K-theory of group-rings and orders in algebras over number fields.

27. International conference on 'Algebraic K-theory' Mathematisches Forschungsinstitut, Oberwolfach, Germany, June 5-11, 1988. **Invited Paper Read:** Higher K-theory of integral Group-rings and orders.

28. Sixth Congress of the International Commission on Mathematics Education (ICME-6), Budapest, Hungary, July 27–August 3,1988. I was part of special panel constituted to discuss the future of ICMI.

29. Centenary celebrations of the America Mathematics Society, Providence, Rhode Island, USA, August 8-12, 1988

30. Second Pan–African congress of Professors World Peace Academy (PWPA), Yaoundé, Cameroon, November 30 – December 4, 1988 **Paper Read as Invited Plenary Lecturer:** Mathematical Sciences and African Development.

31. Commonwealth Science Council Workshop on Commercialization and Evaluation on Research and Development.

32. IDRC conference on human resources development and strengthening of research capacities for West and Central Africa: Dakar, Senegal, April 5-8, 1989.

33. Europe-Africa Encounter – Conference on North-south Interdependence and solidarity; Porto Novo, Republic of Benin August 1989.

34. International Symposium on Current Research Trends in Mathematics, Computer Science and Mathematics Education Arusha, Tanzania, September 11-16, 1987. **Invited Plenary Paper Read:** on Equivariant Higher Algebraic K- theory.

35. African academy of Sciences Conference on Networking of African Scientific Organization (NASO), Nairobi, Kenya, October 2-5, 1989. **Invited Paper Read:** The role of Mathematical Sciences in the Industrial Development of Africa.

36. European Academy Conference on Science, Culture and the Health of the World: Geneva, Switzerland, October 10-14, 89.

37. Twenty-fifth anniversary Conference of International Centre for Theoretical Physics (ICTP), Trieste, Italy, October 31 – November 3, 1989.

38. 2$^{nd}$ congress of African scientists, Accra, Ghana, January 19 – February 2, 1990. I was one of the organizers of this congress.

39. International Congress of Mathematicians, Kyoto, Japan, August 20-28, 1990. **Paper Read:** Some finiteness results in the Higher K- theory of orders and group- rings.

40. Third world Academy of Science general Conference, Caracas, Venezuela, October 27-30, 1990.

41. 'Prelude' – Programme Recherché et liaison Universite et Development – Congress on 'Scientific Networks' Namur, Belgium, November, 1990. **Invited Paper Read:** Networks' in the context of New European Relationships and North – South Co- Development.

42. Third Pan- African Congress of Mathematicians, Nairobi, Kenya, August 20-28, 1991. I was Chairman of the International Committee, which organized the Congress. **Invited Paper Read:** Algebraic K- theory and other Mathematical Sciences.

43. Preparatory Conference for the First PAN- African Congress of Peoples and States, Dakar, Senegal, March 25-30, 1992. **Invited Paper Read:** Science and Technology Integration of Africa: a matter of survival.

44. International Conference on Commutative Algebra, Fes, Morocco, April 20-25, 1992. 1992. K-theory of polynomial rings orders and group-rings. (**Invited Paper**)

45. UNESCO Workshop on the Writing of structured texts for African Universities, Nairobi, Kenya, June 8-11, 1992.

46. First European Congress of Mathematics, Paris, France, July 3-10, 1992. I participated in a Round-Table on Co-operation of European Mathematical Society with Developing Countries.

47. Seventh international Congress of Mathematics Education, Quebec, Canada, August 16-23, 1992. **I Organised a session on** 'Undergraduate Mathematics Education for Specialists, Future Researchers and Mathematics Teachers'.

48. Advanced Workshop on Arithmetic Algebraic Geometry, ICTP, Trieste, Italy, August 31 to September 4, 1992. **I chaired a round-Table on the Status** of Mathematics in the Third World.

49. African Mathematical Union Symposium on Mathematics Education in Africa for 21$^{st}$ Century, Cairo, Egypt; September 5-10 1992. **I was Chairman of the Organizing**

**Committee for this Symposium**.

50. Third World Academy of Science (TWAS) General Conference, Kuwait, November 24-28, 1992.

51. International Symposium on 'Current Research Trends in Mathematics, Computer Science and Mathematical Physics' Port Novo, Benin Republic, January 1993. **Invited Paper Read:** Some Recent Developments in the K-theory of group-rings and orders in algebras.

52. Annual Meeting of the American Association for the Advancement of Science (AAAS), Boston, USA, February 1993**. I gave an Invited talk on** 'Capacity Building and Human Resources for accelerated Development of Science and Technology in Africa.

53. 'Math Fest. 93'. Atlanta University Centre, Atlanta, Georgia, USA; March 18-20, 1993. **I gave an invited address Entitled** 'Mathematics as a Universal Language.'

54. International Conference on Algebraic K-theory, Mathematisches Forschungsinstitut, Oberwolfach, Germany; June 27 – July 3, 1993. **I gave an invited Lecture titled;** Higher K-theory of Modules over finite EI categories.

55. UNESCO Conference on Science and Technology for the year 2000 and Beyond, Paris, France, July 5-10, 1993.

56. Joint American Mathematical Society (AMS). Canadian Mathematical Society (CMS), Mathematical Association of America (MAA)., Meeting, university of British Columbia, CMS, MAA, USA national Association of Mathematicians (NAM). **Invited address titled:** Mathematical Research and Education in Africa –Problems and Prospects.

57. Tenth Anniversary meeting of the Third World Academy of Science, ICTP Trieste, Italy; October 31 – November 5, 1993.

58. One hundred and twenty fifth (125th) Anniversary Celebration of the Finnish Mathematical Society, University of Helsinki, Finland; December 1-2 `1993. **I gave an invited Address on** Mathematics as a Universal Language'.

59. International Symposium on Current Research Trends in Mathematics, Computer Science and Mathematical Physics, University of Ibadan, Nigeria; January 17-21, 1994. **I gave an invited Lecture on** K-theory of Modules over 'EI categories.

60. International Conference on 'Algebraic K-theory and Arithmetic' Fields Institute, Waterloo, Canada, February 28- March 3, 1994.

61. International Conference on Algebraic K-theory and connections with Algebraic Groups – Universitat Bielefeld July 20-24, 1994. **Invited Paper Read:** Higher K- theory of orders Grouprings and Modules over EI-categories.

62. International Workshop on Cyclic Homology – Trento, Italy, July 18-22, 1994.

63. International Congress of Mathematicians, Zurich, Switzerland, August 1- 10 1994.

64. International Workshop on the future of Mathematics communication, MSRI, Berkeley, California, USA, **Invited Paper Read:** Electronic Communications in Africa: situation Report. November 30 – December 3, 1994

65. ICMI Conference on International Collaboration on Education Monash University Melbourne, Australia, April 19-24, 1995. **Paper Read:** Mathematics Education in Africa in relation to other continents.

66. International Conference on Commutative Algebra, University of Fes. Morocco. June 5-10, 1995 **Invited Paper Read:** K-theory of Polynomial extensions.

67. 50th Anniversary Celebrations of UNESCO, ICMS, Edinburgh, UK, Nov. 95.

68. Fourth AMU Pan-African congress of Mathematicians, Ifrane, Morocco. **Invited Paper Read:**

Higher Class Groups of orders and groupings

69. 10<sup>th</sup> Anniversary celebrations of the African Academy of science, Nairobi, Kenya, Dec., 1995.

70. Great Lakes K-theory conferences, Fields Institute, Toronto Canada, March 1-3, 1996. **Invited Paper Read:** Higher Class Groups of orders and groupings

71. International Conference on K-theory, Maths Inst., Oberwolfach, Germany, June 10- 15, 1996. **Invited Paper Read:** Equivariant K-theory for compact Lie Group actions.

72. 8<sup>th</sup> International Congress on Mathematics Education on Mathematics Education, Seville Spain, July 13-21, 1996. I co-organised a Working Group on International cooperation on Mathematics Education.

73. Second European Congress of Mathematics, July 21-28, 1996.

74. African Mathematical Union Workshop in Algebra, University of Ouagadougou, Burkina Faso, April 21-25, 1997. **Invited Lecture:** Equivariant Higher K-theory for Compact Lie Groups actions.

75. Joint AMS-SAMS-LMS meeting, University of Pretoria, South Africa, June 25-28, 1997. With Eric Friedlander, I co-organized a Special Session on "Algebraic K-theory". **Invited Lecture:** Higher Class Groups of Orders and Integral Groupings.

76. AMS summer Research Conference, University of Seattle, Washington USA. July 12-25, 1997. **Invited Lecture:** Higher Class Groups and Continuous K-theory of p-adic orders.

77. ICTP Workshop/ Symposium on Algebraic K-theory and its application, Trieste, Italy, Sep. 1-19, 1997. **I was a Director** as well as Local organizer of the Workshop/Symposium.

78. Workshop on Algebraic K-Theory, Université Paris, VII, France. **Invited Lecture:** Non-Commutative Chern characters of compact Lie group C-algebra.

79. Great Lakes Algebraic K-Theory meeting and Annual AMS meeting, University of Illinois, Urbana-Champaign. March, 1998.

80. International Congress of Mathematicians, Berlin, Germany. August 18-27, 1998.

81. 10th General meeting of TWAS, Trieste, Italy. December 9-10, 1998.

82. International Workshop on Stable Homotopy and Algebraic K-theory. Universitaat Bielefeld, Germany. February 10-15, 1999.

83. International Conference on Non-Commutative Algebras, CIRM, Université Luminy, May 21-25, 1999.

84. International Conference on 'Algebraic K-Theory', Mathematisches Forschungsinstitut Oberwolfach, Germany, September 26 - October 2, 1999. **Invited Lecture:** Non-Commutative Chern characters of compact Lie group C*-algebras and compact quantum groups.

85. EXCITE (European Science Centres) Annual Conference, Prague, Czech Republic, November 18-20, 2000. **Invited Lecture:** North-South cooperation for global literacy and numeracy.

86. TWAS General Conference and AFRISTEC Meeting, Dakar, Senegal. November 21-26, 1999.

87. 5th AMU Pan-African Congress of Mathematicians, University of Western Cape, Cape Town, South Africa. **Invited Plenary Lecture:** Chern characters in non-commutative geometry.

88. International Workshop on Arakelov Geometry, Université Montpellier II, France. May 26-27, 2000.

89. TWAS General Meeting, Teheran, Iran. October 21-26, 2000.

90. First Pan-African Symposium of Mathematics Olympiads, Tunis, Tunisia. November 1-6, 2000. **Invited Plenary Lecture:** Mathematical sciences and other sciences.

91. Science Institute group (SIG)/African Academy of Sciences (AAS) meeting on "Millennium Science Initiatives in Africa", Nairobi, Kenya. November 14-16, 2000. **Invited Lecture:** Mathematical Sciences vis-à-vis basic sciences in Africa.

92. International Conference on "Recent Advances in the Mathematical Sciences" --- To celebrate the 50th Anniversary of the Indian Institute of technology, (ITT), Kharagpur, India. December 20-22, 2000. Invited **Keynote Address:** Continuous Cohomology and Higher K-Theory of exact categories.

93. International Conference on "Geometric Analysis and Index Theory", Trieste, Italy, March 18-24, 2001. **Invited lecture**: Equivariant Hopf-algebra KK and Index theories.

94. International Conference on "Quantum Field Theory, Non-Commutative Geometry and Quantum Probability", March 26-29, 2001. I was a member of the Scientific Committee for this meeting.

95. Great Lakes K-theory Conference, Evanston, Illinois, USA, April 20-22, 2001

96. High-Dimensional Manifold Topology, Workshop Conference, Trieste, Italy, May 21 - June 8, 2001.

97. International Conference on "Topology and its Applications". Norfdjordeid, Norway, August 6-10, 2001. **Invited lecture**: Profinite and continuous higher K-theory of exact categories, schemes, orders and group rings.

98. International Workshop on "Mathematics for Development of Africa". Arusha, Tanzania, Nov. 19-21, 2001. **Invited paper read:** Mathematics and the development of Africa - The way forward.

99. Expert group meeting on Millennium Science Initiative (MSI) Institutes in Africa, Kampala, Uganda, Jan.

100. The Conference on Algebraic Topology, Northwestern University, Evanston, Illinois. USA. March 24-28, 2002.

101. Workshop on K-theory, Derived Categories and Strings, Geneva, Italy, June 18-21, 2002. (I was a member of the Scientific Committee).

102. Workshop on Stratifications of Moduli Spaces, Warsaw, Poland, May 14-19, 2002. **Invited lecture:** Profinite and continuous higher K-theory of exact categories, schemes, orders and group rings.

103. School and Conference on Algebraic K-theory and its Applications (in honour of H. Bass), in Trieste, Italy, July 8-16, 2002. **I gave <u>six</u> invited lectures** on "K-theory and Representation Theory".

104. Conference on Algebraic K-theory and its Applications, July 22-26, 2002. **I gave an invited lecture** on "Profinite and continuous higher K-theory of exact categories, schemes and orders".

105. International Conference on "Algebraic K-theory". Mathematisches Forschungsinstitut Oberwolfach, Germany, August 4-10, 2002.

106. International Congress of Mathematicians, Beijing, China. August 18-26, 2002.

107. Workshop on "Enriched Structures and Stable Homotopy", Cambridge, United Kingdom. September 8-19, 2002.

108. Conference on "K-theory and Arithmetics", Cambridge, United Kingdom. September 30 - October 4, 2002.

109. TWAS 8th General Conference and 13th General Meeting, New Delhi, India. October 19-24, 2002.

110. G-77 High Level Conference on Science and Technology, Dubai, UAE. October 25-26, 2002.

111. TWAS 9th General Conference and 14th General Meeting, Beijing, China, October 16-20, 2003

112. International Workshop on "Geometric Methods in Representation Theory", University Warwick, Coventry, United Kingdom, March 28-April4, 2004. **Invited lecture**: "K-theory and Periodic Cyclic Homology of Some Quantum Algebras."

113. International Workshop on "Hopf Algebras", University of Wales at Swansea June 24-26, 2004. Invited lecture: A complete formulation of Baum-Connes Conjecture for the action of discrete quantum groups.

114. International Conference on "Algebraic K-Theory and its applications, Safi, Morocco, July 25-30, 2004. I co-organized this conference and also gave an invited lecture on "A complete formulation of Baum-Connes conjecture for the action of discrete quantum groups".

115. International Conference on "Topology, Analyses and Application to Physics" at Moscow State University, Russia, Feb. 13-20, 2005. **Invited paper read:** "A complete formulation of the Baum-Connes conjecture for the action of discrete quantum groups".

116. International Workshop on Algebraic K and L-theory of infinite groups, Edinburgh, UK, June 27-July 1, 2005. I gave an invited lecture titled: "Higher K-theory of virtually infinite cyclic groups".

117. International Workshop on "Representation Theory in Geometry and Physics", IMSP, Porto-Novo, Benin Republic, August 1-17, 2005. I was a co-organiser of the Workshop.

118 International conference on "Algebraic K-theory". Mathematisches Forschunginstitut, Oberwolfach, Germany. July, 2006.

119 International Workshop on Non-Commutative Geometry and Cyclic Cohomology July 31 to August 4, 2006.

120 ICSU Regional Office for Africa consultative Forum. Sept 25-27, 2006. I chaired The session on "Contributions of African Scientists in the Diaspora"

121 African Union Congress of African Scientists and Policy Makers , Alexandria, Egypt, October 26-29, 2006. I gave an invited Key-note Address on "African Solutions to African challenges through Science and Technology"...

122 Blackwell-Tapia Conference, IMA, Minnesota, USA, Nov3-4, 2006

123 International Workshop on "Representations, Cohomology and Support Spaces" Bielefeld, April 29-May 1, 2007.

124 ICTP (Trieste, Italy) School and Conference on "Algebraic K-theory and its Applications" May 14-June 1, 2007. I was a Director of the School/Conference and I also gave an invited lecture on "Farrell-Jones conjecture and Higher K-theory of twisted polynomials and power series rings".

124 2009 Southern Algebra Conference, University of Southern Alabama, Mobile, Alabama, USA. March 20-22, 2009. I gave an invited lecture on "Representation theory and Higher Algebraic K-theory"

125 17th Annual Phillip L. Young Research Symposium, Grambling state University, April 23, 2009. I gave a lecture on "K-theory as a way of classifying various mathematical structures".

126 CIMPA-UNESCO-BURKINAFASO School on "Index Theory and Interactions with Physics. May 20-30, 2009. I gave a series of invited lectures on "K-theory and Index Theory"

128 7th African Mathematical Union (AMU) Pan-African Congress of   Mathematicians
Yamousoukro, Cote DÍvoire. I gave an invited plenary lecture on "The role of
Mathematics in the Science and Technology Development and Innovation in Africa.

129 International Conference on Regional and Interregional Conference on strengthening
Basic sciences in Developing Countries. Addis-Ababa, Ethiopia. Sept 1-5, 2009
I gave an invited lecture on "Regional and International Co-operation to
strengthen basic sciences in Africa"

130 Southern Regional Algebra Conference, Auburn University at Montgomery,
Alabama, USA. I gave an invited lecture on "Equivariant Higher algebraic K-theory
For the action of Algebraic Groups " March 26-28, 2010.

131. Workshop on capacity Building for Mathematical Sciences lectures in Tertiary
Institutions. National Mathematical Centre, Abuja, Nigeria, June 21-25, 2010.
I gave an invited lecture on:  "Trends in Contemporary Mathematics: Illustrations
From K-theory".

132. International Congress of Mathematicians (ICM), Hyderabad, India August 20-28,
2010.

133. 80th anniversary celebration (Mathematical Sciences) of the Institute of Advanced
Study (IAS) Princeton held at IAS Princeton, NJ Sept 24-25, 2010.

134 21st General Meeting of TWAS, Hyderabad, India, October 18-23 , 2010.
I chaired the session on "Lectures by Awardees of 2009 TWAS prizes in the
Physical Sciences

135 International Conference on "K-theory, C*-algebra and index theory". Nov 1-6,
201 held at the University of Gottingen, Germany. I gave an invited lecture on "K-
theory, Cyclic Homology, and Chern Characters of Some Quantum Groups"

136 International conference on Algebraic K-theory and its applications. (In honour of
My 70th birthday) Nanjing University, Nanjing, China  March 17-21, 2011.
I gave an invited lecture on "Farrell-Jones Conjecture and K-theory of twisted
Laurent series rings over orders and semi-simple algebras over number fields and
p-adic fields."

137 Capacity building workshop for University Mathematics lecturers , National
Mathematical Center, Abuja, Nigeria, June 20-25, 2011. I gave an invited lecture
on " Elementary classifications of various mathematical objects and  structures".

138 International Conference on "Algebraic Representation Theory" University of
Uppsala, Uppsala, Sweden August 31-September 4, 2011. Gave an invited lecture
on Ëquivariant Higher algebraic K-theory for the action of  Algebraic Groups"

139 Workshop on "Index Theory Via K-theory and C*Algebras with
Applications to Physics" June 27-July 7, NMC, Abuja, Nigeria I gave a series of
lectures on " Introduction to Index theory via  K-theory and C*-Algebras".

140 2012 Joint Mathematics Meetings (JMM) January 4-7, 2012, Boston,
Massachusetts, USA. .I gave the National Association of Mathematicians (NAM)
Invited Claytor-Woodward lecture. Titled "Profinite (continuous) Equivariant
Higher algebraic K-theory for the action of Algebraic groups."

141 USA Southern Regional Algebra Conference (SRAC) , Clayton State University,
Morrow, Atlanta, GA, USA .March 30 – April 1, 2012. I gave an invited lecture on
"Farrell-Jones conjecture and higher K-theory of twisted Laurent series rings over
orders and semi-simple algebras "

142 International Conference on Algebraic K-theory and Arithmetic in memory of
   Jurgen Hurrelbrink  at Beldewo, Poland, July 22-28, 2012.. I gave an invited
   plennary lecture titled" Profinite Equivariant Higher Algebraic K-theory for the
   action of algebraic groups"
143 2013 Joint  Mathematics Meetings (JMM) , San Diego, California, Janury 9 - 12,
   2013 . During this meeting, I was inaugurated as a Fellow of the American
   Mathematical Society
144 8th African Mathematical Union (AMU) Pan-African Congress of Mathematicians
   Abuja, Nigeria. June 30 - July 7, 2013. I gave an invited plenary lecture titled:
   "K-theory and Representation theory: Illustrations with Algebraic Groups".
145 International Conference on Pure and applied Mathematics, University of
   Technology, Lae, Papua New Guinea.  I gave two invited plenary lectures:
    (1) Public Lecture: "Mathematics as a time-tested resource for Scientific,
        Technological, Socio-Economic and Intellectual Development"
    (2) Mathematical Research Lecture: "K-theory and Representation Theory---
        Illustrations with Algebraic Groups"
146  9th General Assembly of the African academy of Sciences (AAS), April 15-19,
   2014, Brazaville, Congo. I delivered a key-note mathematical presentation titled:
   "K-theory, Representation Theory, and classifications of various mathematical
   structures and objects.
147.  USA-Africa Summit on Science, Technology and Innovation organized by the
   USA National Academy of Sciences, Washington DC, August 5-8, 2014. I chaired
   a session on "Key opportunities for fostering STI Development in Africa"
148:  Massachusetts Insttute of Technology (MIT) STARR FORUM on "Africa
   Rebouted: STI in Development. September 24, MIT, Boston, MA, USA. I made an
   invited contribution on " Possible MIT-Africa areas of STI collaboration for
   development"
149  The World Academy of Sciences (TWAS) 25th General meeting, Muscat, Oman,
   October 26-29, 2014. I chaired the session on "Presentations by Young TWAS
   Affiliates in Mathematics and Physics".
150:  ICPAM-2 Goroka International Conference on Pure and Applied Mathematics at
   the University of Goroka, Papua New Guinea, Dec 8-12, 2014. I delivered two
   invited lectures: 1) A plenary Mathematics lecture titled "Comology of SL_n(A) of
   arbitrary orders A (e.g non commutative group rings) in Algebras over Number
   Fields" and 2) A PUBLIC LECTURE titled "Mathematical Sciences Research and
   Education in the Age of Globilization"
151 AAS/AMU three week Symposium on  "Current Research Trends in the
   Mathematical Sciences and Applications (May 16-20,2016)  and a pre-symposium
   School (May 3-16, 2016). I gave an invited colloquium lecture titled "Cohomology
   of SL_n of arbitrary orders (e.g non-commutative group rings) in algebras over
   number fields" as well gave a course of eight lectures at the School on the topic
   "Algebra and its ramifications in other areas of mathematics"
152 AAS General Assembly, June 20-22, 2016. I gave an address at the opening
   ceremony, inducted His Excellency the President of Botswana as Honorary AAS
   Fellow, as well as presided over the AAS GC  and GA meetings
153 International Workshop for Capacity Development through South-South and

triangular co-operation in Science, Technology and ICT. July 20-22, 2016, I
discussed the situation in Africa and Nigeria in particular.

154 Workshop on Innovations in investments in young children globally, Abidjan, cote
D'Ivoire. I chaired the session on Research Innovations from Regional Scholars.

155, Sixth Berlin Demography Forum, Feb 16-17 , 2017. During the forum, I gave
key-note address on " The Demographies of Africa: Health, Children,Ageing"

156. First Pan-African project management Conference, Younde, Cameroon May
24-27 2017. I gave a key-note address titled: Towards Producing a critical mass of
STI and Project Management Specialists for Socio-economic development of
Africa.

157: Commonwealth Science Conference, Singapore organised by the royal
Society and the National Research Foundation of Singapore.. He also attended
A meeting of the Presidents of Commonwealth Academies during the conference.

158 African Mathematical Union (AMU ) Pan-African Congress of
Mathematicians, Rabat, Morocco, July 3-8, 2017. I gave an invited plenary lecture
titled" Representation Theory and Higher Algebraic K-theory—Illustrations with
Algebraic Groups.

159 On July 12, 2017, I gave a public lecture on "Science and Technology in the next
100 years". The lecture was in the series "Science Nigeria Lectures" and organised
by the Global Science Development Initiative, Nigeria

160. The 9th Olympiad of the mind took place at Chania, Crete, Greece, Sept 13-18,
2017. I gave an invited lecture on " Science, Technology and Innovation (STI) in
the age of globalization". The Olympiad of the Mind is the intellectual
counterpart to the Olympic Games for the body.

161. AEMASE (African, European, Mediterranean Academies for Science Eduction)
Conference/Workshop held in Paris, France, October 2-4, 2017. I gave an invited
Lecture on "Towards More Innovations in Mathematics, Science and Technology
Education"


## XIII.  Research Interests  and Contributions

- My research area is Algebra in a broad sense. My research over the years have focussed on
Commutative and Non-commutative Algebra /Arithmetic/Geometry through methods of K-
theory, Cyclic homology, encompassing Algebra, Number theory, Representation theory,
Algebraic topology, operator algebras and some Algebraic Geometry and Differential
Geometry. Such usually non-commutative structures; include e.g.  (1) Orders in algebras
over number fields and p-adic fields; (2) Group-rings and representations of finite, discrete,
profinite, algebraic and compact Lie groups); (3) C*-algebras, and Lie groups C*-algebras;
(4) Hopf algebras and Quantum groups. Note that cyclic homology and K-theory of the
latter two structures belongs to non-commutative geometry.

- My initial work contributed to the understanding of the LF and NF functors with
applications to the computation of Picard group of Algebraic Geometry, see [3]. Moreover, I
also contributed to the understanding of Whitehead groups of group-rings of finite group
over the ring of integers in algebraic number fields and p-adic fields as well as Whitehead
groups of orders in algebras over such fields. I proved several finiteness results in this
direction (see [4],[5]).

- Later, with the definition of Higher Algebraic K-theory by Quillen and others, it became

important for various applications to understand the structure of Higher K-theory of orders and group-rings, (that is, to study $K_n$ (all n) of the category of finitely generated projective modules over group-rings and orders; $K_n$ of the category of G-representations in the category of finitely generated modules over such rings as the ring of integers in number field, their localisations and completions, where G is a finite, profinite or compact group). More precisely, let R be the ring of integers in a number field F, A any R-order in a semi-simple F-algebra $\Sigma$, $\underline{p}$ a prime ideal of R, I have proved many striking results on the Higher K-groups $K_n(A)$, $G_n(A)$, as well as on Higher dimensional class groups $C\ell_n(A)$. For example, I proved that for all $n \geq 1$, $K_n(A)$, $G_n(A)$ are finitely generated Abelian groups, and that rank $K_n(A) =$ rank $G_n(A) =$ rank $K_n(\Sigma)$ for all $n \geq 2$; that $SK_n(A)$, $SG_n(A)$, $SK_n(A_{\underline{p}})$, $SG_n(\underline{p})$ and $C\ell_n(A)$ are finite groups for all $n \geq 1$. See [10],[12],[14],[17],[21]. All the results above hold for A=RG, (G finite group) and I also proved that if G is a finite p-group, then $SK_n(RG)$, $C\ell_n(RG)$ are finite p-groups for all $n \geq 1$. I also proved a striking characterisation of p-adic semi-simple algebras $\Sigma$ in terms of K-theory of maximal orders $\Gamma$ in $\Sigma$, i.e. $\Sigma$ is unramified over its centre if and only if $SK_{2n-1}(\Gamma)=0$ for all $n \geq 1$. (See [7]).

- In [12], I obtained several important results on the Higher K-theory of the category of representations of a finite group G in the category of $\underline{P}(\Gamma)$ where $\Gamma$ is a maximal order in a central division algebras over number fields and p-adic fields. These results translate into computations of $G_n(\Gamma G)$ as well as lead to showing via topological and representation theoretic techniques that a non-commutative analogue of a fundamental result of R.G. Swan at the zero-dimensional level does not hold.

- Moreover, in collaboration with A. Dress, I was able to formulate an equivariant Higher Algebraic K-theory via the theory of Mackey functors and this equivariant theory has proved very useful in proving result on Higher K-theory of group-rings. More precisely, if G is any finite group, $\mathscr{C}$ an exact category, and T a G-set, we constructed higher algebraic K-functors $K_n^G(-,\mathbb{C},T)$, $P_n^G(-,\mathbb{C},T)$, as "Mackey functors" from the category of G-sets to the category of Abelian groups, (i.e. functors satisfying certain functorial properties, in particular, the categorical version of Mackey subgroup theorem in representation theory), in such a way as to identify $K_n^G(G/H,\mathcal{M}(R))$ with $K_n(\underline{\mathcal{M}}(RH) = G_n(RH)$; $K_n^G(G/H,\mathscr{P}(R))$ with $K_n(\underline{P}_R(RH))=G_n(R,H)$, and $K_n^G(G/H,\mathscr{P}(R)G/e)$, with $K_n(RH)$ for any subgroup H of G where for any ring R with identity, $\mathscr{P}(R)$ is the category of finitely generated projective R-modules and $\underline{M}(R)$ is the category of finitely generated R-modules, (R Noetherian), and $\mathscr{P}(RH)$ the category of RH-lattices, see [8],[9]. I have since generalised these constructions to the cases where G is a profinite group (see [11]) and G a compact Lie group (see [24]). These constructions have also been useful in studying cohomology of groups. My book on 'Axiomatic theory of induced Representation of Finite Groups', is an exposition of the theory of Mackey functors in the context of representation of finite groups (see [48]). Through the above techniques I was able to prove the striking result that if k is a field of characteristic p, G a finite or profinite group, then the inclusion functor $\underline{P}(kG) \rightarrow \underline{M}(kG)$ induces an isomorphism K-groups tensored with Z(1/p), i.e. $K_n(kG) \otimes \mathbb{Z}(\frac{1}{p}) \simeq G_n(kG) \otimes \mathbb{Z}(\frac{1}{P})$ (see [8],[11]). This result leads to some interesting computations e.g. that for a finite group G, $K_{2n}(kG)$ is a finite p-group (see [14]).

- Furthermore, I have studied and obtained several finiteness results on Higher K-theory of modules over 'EI' categories, i.e. categories in which every endomorphism is an isomorphism. The theory of modules over 'EI' categories is a generalisation of modules over group-rings and has topological applications in the study of transformation groups since certain topological invariants reside in the K-theory groups (see [20]).

- Let $\mathcal{C}$ be an exact category, $\ell$ a rational prime. I have developed an extraordinary cohomology theory in form of a profinite Higher K-theory $K_n^{pr}(\mathcal{C}, \mathbb{Z}_\ell)$ yielding remarkable $\ell$-completeness theorems for various exact categories $\mathcal{C}$ and in particular for the profinite higher K and G-theories $K_n^{pr}(\mathcal{A}, \mathbb{Z}_\ell) = K_n^{pr}(\mathcal{P}(A), \mathbb{Z}_\ell)$, $G_n^{pr}(\mathcal{A}, \mathbb{Z}_\ell) = G_n^{pr}(\mathcal{M}(A), \mathbb{Z}_\ell)$ where A is any R-order in a semi simple F-algebra over number fields and p-adic fields.. This study was inspired by continuous cohomology theories rooted in algebraic topology and Arithmetic Algebraic Geometry. The results proved apply if A = RG, if R is the ring of integers in a number field or p-adic field F, I have also defined and studied continuous K-theory of p-adic orders A, and obtained several results on this construction including the fact that $K_{2n}^c(\wedge)$ the even dimensional continuous higher K-groups are pro-p-groups(see [27]).

- In a joint work with G. Tang, I have obtained interesting results on higher K-theory of virtually infinite cyclic groups V for the two types of V. When V is the semi-direct product of G and T with respect to an automorphism a of G given by inner automorphism by elements of T, we prove among other results that if R is the ring of integers in a number field F, then for all non-negative integers n, G_n(RV) is a finitely generated Abelian group and NK_n(RV) is |G|-torsion. For the second type where V is the amalgamated product of finite groups G_0 and G_1 with respect to a finite subgroup H where the index of H in G_0 and G_1 is 2 , we prove that the Nil groups of V are |H|-torsion (see [32]).

- In a joint work with G. Tang, I obtained explicit computation of the "bar" homology groups of a non-unital ring - a problem arising in higher K-theory and algebraic topology, see [30].

- I have in a joint work with M. Mahdavi-Hezavehi investigated and obtained interesting results on the algebraic structure of subgroups of the group of units of a non-commutative local ring (see [33]).

- I have also been working on Non-commutative geometry especially entire/periodic cyclic homology and K-theory of involutive Banach algebras, C*-algebras, group C*-algebras, Hopf algebras and quantum groups and studying connections (Chern characters) between K-theory and cyclic homology of these structures. More precisely, I have, in a joint work with D.N Diep and N.Q. Tho, constructed and studied non-commutative Chern characters from K-theory of compact Lie group C*-algebras and compact quantum groups to their entire/periodic cyclic homology, and proved interesting results - that the Chern characters are isomorphisms modulo torsion in the case of compact Lie group C*-algebras and compact quantum groups,    (see [22],[25]).

- I have also, in a joint work with D.N. Diep, obtained some interesting results on non-commutative Chern characters of some non-compact quantum algebras see [31]. More precisely, we proved that the periodic cyclic homology groups of the quantised algebra of functions on coadjoint orbits of connected and simply connected Lie groups are isomorphic to the periodic cyclic homology of the quantised algebra of functions on coadjoint orbits of compact maximal subgroups, without localisation. We also compute the K-groups, periodic cyclic homology and Chern characters of such algebras for quantum half planes and

quantum punctured complex plane.

- I have also been working on quantum group theoretic formulation of the Baum-Connes conjecture - a celebrated problem in non-commutative geometry. More precisely let A be a discrete quantum group acting on a C*-algebra B and satisfying some regularity assumptions (resembling the proper G-compact action for a classical discrete group G on some space). I have, in a joint work with D. Goswami (see [34]) constructed an analytic assembly map from the A-equivariant K-homology groups to the K-theory groups.. In [36], we have provided a complete formulation of Baum-Connes conjecture for the action of discrete quantum groups as well as verified our formulation for general finite dimensional discrete quantum groups and proved surjectivity of our assembly map for the dual of $SU_q(2)$.

- In a joint work with X. Guo, I have defined and studied wild kernels for higher K-theory of division algebras D over number fields. We proved among other results that it is finite. We also obtained interesting connections between the wild kernels and the subgroup of divisible elements of .of K-tgroups of the division algebras. (see [37])

- In a joint work with Guo and Qin (see [38], I have proved that if $F$ is a number field and D a finite dimensional central division F-algebra with square free index, then $K_2D$ is generated by Steinberg symbols *{a,b}* with *a in F\*, b in D\**, whereas if $F$ is a global field, then for any integer n>3, there is an extension field $E$ over $F$ of degree $n$ such that $K_2E$ is not generated by the Steinberg symbols *{a,b}, a in F\*, b in E\**.

- In a joint work with X. Guo, I proved that if $A$ is a quaternion algebra and B an Eichler order in A, then the only p-torsion possible in even dimensional higher class groups of B are for those rational prime p which lie under prime ideals of $O_F$ at which A is not maximal. A similar result is obtained for hereditary orders in semi-simple algebras. (See [40])

- In [42], I have constructed absolute and relative equivariant higher Algebraic K-Theory for Waldhausen categories as a generalization of the constructions in [8] for exact categories. Applications to Thomason's complicial Waldhausen categories are given as well as some finiteness results for some Waldhausen K-groups.

- In [43], I proved that if R is the ring of integers in a number field F and A is any R order in a semi-simple F algebra, then $K_{2n}A$, $G_{2n}A$ are finite groups and that when G is a finite p-group, $SK_{2n-1}(ZG)$, $SK_{2n-1}(Z_pG)$, are finite p-groups

- [41] is a comprehensive exposition of Higher algebraic K-theory including constructions, fundamental results, and connections to Galois, Etale , Motivic Cohomology theories, Representation theory as well as well as computations of K-theory of integers in global and local fields.

- .Let G be an algebraic group over a field F.. In [45] , I studied and computed equivariant higher K-groups as well as profinite equivariant higher K-groups for some G-schemes over number fields and p-adic fields. I also obtained among others, some finiteness and l-completeness results for twisted flag varieties etc.

- In [46], I proved that the rational Higher K-theory and G-theory for twisted power Series rings over arbitrary orders are isomorphic as well as isomorphic to rational K-theory of twisted power series rings over semi-simple algebras over number fields.. I also proved some finiteness results for negative K-theory of such rings as well as some l-completeness and other results for profinite K-theory of such rings.

- In [51], I constructed a cohomology theory in the category of generalized Bredon co-

efficient systems in a purely categorical setting in order to generalize classical Bredon cohomology theory and show that this theory constructed in general categorical terms indeed yields Bredon cohomolgy for finite, discrete, and profinite groups. I also study Higher K-theory for the category of finitely generated (resp. finitely generated projective) objects in the category of generalized Bredon co-efficient systems and obtain some finiteness results.

- In [47], I study higher K-theory of p-adic orders, and twisted polynomial and power series rings over p-adic orders. For higher K-theory of p-adic orders, I obtain a partial solution to an open question, and in the three cases, obtain some p-torsion results. I also prove that higher K- and G-theories of twisted Laurent series rings over p-adic orders are rationally isomorphic.

- [48] is focussed on studying equivariant exact categories for the actions of finite and algebraic groups as well as computing their higher and profinite higher K-groups. For algebraic groups , several results are presented for twisted flag varieties and Severi-Brauer varieties.

- [49] is the essential contents of the series of lectures I gave titled "Introduction to K-theory and Index Theory."at the International "CIMPA/UNESCO/BURKINAFASO Workshop on 'Index Theory and Interractions with Physics". The lecture was aimed at introducing the participants to Index theory via K-theoretic methods.

- In [50], I discussed some trends in contemporary mathematics with illustrations from K-theory.

- I have published a book titled 'Abstract Algebra' xvii + 419 pages suitable for the use of honors undergraduates and beginning graduate students in mathematics (see [53]).Together with J Rawnsley and E. Thoma  I also published a book " Representation and its Applications (see [54]). [55] is the Journal publication of Proceedings of an International K-theory Conference I organized at Ibadan, Nigeria in 1987. Moreover, I have published in the lecture notes series of the National Mathematical Centre, Abuja,  Nigeria, my notes on 'Topics in Algebraic K-theory', and 'Commutative Algebra' - all arising from the invited lectures I gave at the Centre on  the topics (see [56] [57],). Moreover, apart from [55], I have edited several other Proceedings of International K- theory meetings –Books and Journal publications-- see [53], [58], [59] , [60], [62] .My most recent  book "Representation Theory and Higher Algebraic K-theory" xxvii + 442 page published by Chapman and Hall in 2007 is suitable for an advanced graduate course or for use by Researchers in the field and related fields. See [61].

 Finally, I have published quite a number of papers on topical issues in Mathematical Research and Education, as well as Topical issues in Science and Technology (see [62] to [82]).

## XIV.    **Research In Progress**

       1)   COHOMOLOGY OF SL_n OF ARBITRARY
           ORDERS (e.g non-commutative group-

rings)  IN SEMISIMPLE ALGEBRAS OVER NUMBER  FIELDS.

Let R be the ring of integers in a number field F, A an R-order in a semi-simple F-algebra B. We can define a 'reduced norm'  map nr : GL_n (B) $\rightarrow$ C* where C* is the group of units of the center  C of B. We denote the kernel of nr by SL_n(B) –a semisimple algebraic group.
Then SL_n(A) := (GL_n(A) intersected with SL_n(B)) is an arithmetic subgroup of SL_n(B). The aim of this work is to compute the cohomology of SL_n(A) as a non-commutative analogue of results of A. Borel.

Note that the considerations of orders in division algebras does not yield results on arbitrary orders in semisimple algebras and so does not yield results on group-rings. Note also that an arbitray order in B does not split as product of orders in the simple components of B unless it is a maximal or hereditaty  order in which case it splits into a product of maximal or hereditary orders in the simple components of B.

Now, SL_n(A) is  a discrete subgroup of the Lie group G' of real points of SL_n(B) . If K be a compact subgroup of G' then we have the symmetric space X = K/G' on which SL_n (A) acts and we can compute the cohomology of the quotient space X/SL_n(A). These computations eventually yield information on higher K-groups K_n(A)  (e.g rank of K_n(A) ) and hence on K_n(RH) where RH  is the (non-commutative) group-ring of the of the non-Abelian finite group H.

2)  BOREL REGULATORS FOR HIGHER K-THEORY OF ARBITRARY ORDERS (AND GROUP-RINGS) IN SEMI-SIMPLE ALGEBRAS OVER NUMBER FIELDS.

I have defined a Borel-type regulator map from Higher K-groups (K_n(A)) of an arbitrary order A in a semi-simple algebra B as a non-commutative analogue of the Borel regulator map for integers in number fields.  I am in the process of studying this map and compute the map and its kernel. I am also trying to see possible connections with non-commutative zeta functions defined some time ago by Bushnell and Reiner.

3)  FARREL-JONES CONJECTURE AND HIGHER K-THEORY OF VIRTUALLY INFINITE CYCLIC GROUPS.

Let R be the ring of integers in a number field F, V any discrete group. Then Farrell-Jones conjecture asserts (roughly speaking) that K-theory of the group-ring RV can be computed in terms of K-theory of RH for virtually infinite cyclic subgroups H of G. Note that a group is virtually cyclic if it is either finite or virtually infinite cyclic( i. e contains a subgroup of finite index).  Virtually infinite cyclic groups are of two types, namely i) the group V which admits an epimorphism ( with finite kernel  ) to the infinite cyclic group  and ii) the group V which admits an epimorphism  (with finite kernel) to the infinite dihedral group. My joint paper with G. Tang

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"Higher Algebraic K-theory of virtually infinite cyclic groups" MATHMATISCHE ANNALEN 325, 711-726 (2003) was the first to study higher K-theory for virtually infinite cyclic groups where we proved among other results, that $G_n(RV)$ are finitely generated Abelian  groups for all n > or = 0, and the nil groups for the two types of groups are torsion.

   Because the groups RV ( for the first type of V) are special cases  of twisted Laurent series rings over arbitrary orders in semi-simple F-algebras , I studied the more general situation resulting in my paper " Higher  Algebraic K-theory for twisted Laurent series over orders and semi-simple algebras" , ALGEBRAS AND REPRESENTATION THEORY, 11, 355-368 (2008) (which also covered pro-finite Higher K-theory) where I proved among other results that the K-theory and G-theory for twisted power series rings over arbitrary R-orders are rationally isomorphic as well as rationally isomorphic to  K-theory of twisted power series rings over semi-simple F-algebras. I also obtained some l-completeness results for the profinite higher K-groups.

   I have also studied the local situation resulting in my paper "Higher Algebraic K-theory of p-adic orders, twisted polynomial and Laurent series rings over p-adic orders" COMMUNICATION IN ALGEBRA 39,3801-3812 (2011) where I obtained a partial answer to an open question on $SK_n$ of p-adic integral group rings ,proved that the nil-groups of twisted polynomial and Laurent series  rings over  p-adic orders are p-torsion as wells as proved  rational isomorphisms   for K- and G-theories for twisted Laurent series rings over p-adic orders and K-theory of twisted Laurent series rings over  p-adic semi-simple algebras.  These results show that Farrell-Jones conjecture can be formulated also in the local situation.

   It is my intention to obtain more results on Higher K-theory (as well as profinite(continuous) higher algebraic K-theory)  of virtually infinite cyclic groups both in the local and global situation.

4) COHOMOLOGY FOR GENERALIZED BREDON CO-EFFICIENT SYSTEMS AND HIGHER K-THEORY.

   I have constructed a category of generalized Bredon co-efficient systems as well as constructed  a cohomology theory for such categories in such a way as to generalize  Bredon  cohomology involving finite, pro-finite and discrete groups. I have also been computing Higher K-groups of the category of finitely generated projective objects as well as finitely generated objects in such categories. My results with above title have recently been published in the JOURNAL OF K-THEORY: Applications to Algebra, Geometry and Topology Cambridge University press (first view, 2012 1-15).The explicit finiteness results in the paper on Higher K-theory was obtained in the context of based categories. I do intend to obtain explicit computations in the context of generalized based categories .

5) EQUIVARIANT HIGHER ALGEBRAIC K-THEORY FOR THE ACTION OF ALGEBRAIC GROUPS

I have been working on Equivariant Higher algebraic K-theory as well as profinite (continuous) equivariant Higher K-theory leading to some explicit computations of higher K-groups and Profinite (continuous) higher K-groups of twisted flag varieties over number fields and p-adic fields. These computations which include several finiteness and l-completeness results are in my papers "Profinite Higher algebraic K-theory of twisted flag varieties". AFRIKA MATEMATIKA (PUBLISHED BY SPRINGER), 22 , 91-104.; "Profinite and continuous Higher K-theory of exact categories, orders and group-rings. K-THEORY JOURNAL, 22 367-392 (2001)

### 6) HIGHER DIMENSIONAL CLASS GROUPS OF ORDERS AND GROUP RINGS

The notion of higher dimensional class groups of orders and group-rings, defined via Higher Algebraic K-theory, coincides in zero dimension with the usual notion of class group of orders and group-rings which in turn is a generalization of the number theoretic class groups of Integers in number fields . In my joint papers with X. Guo, "Higher Class groups of generalized Eichler Orders" COMMUNICATIONS IN ALGEBRA, 33, 709-718, (2005); "Higher Class groups of locally triangular orders over number fields"  ALGEBRA COLLOQUIM, 16, 1,79-84, (2009) , we proved among other results  that if F ia a number field, and A is a generalized Eichler Order (, e.g an Eichler order in a quarternion F-algebra or a hereditary order in a semi-simple F-algebra),OR if A is a locally triangular order, then the only p-torsion possible in even dimensional higher class groups of A are for those rational primes p which lie below prime ideals of O_F at which A is not maximal.

Explicit determination of torsion in even dimensional higher class groups of arbitrary orders in semi-simple F-algebras (and hence group-rings) is still an open problem that I intend to tackle . The answer for odd dimensional higher class groups in this case is known through the work of Kolster and Laubenbacher (On higher class groups of orders; Math Z. 228 (2) 229-246.

### 7) FORMULATION OF BAUM-CONNES CONJECTURE FOR THE ACTION OF QUANTUM GROUPS

I have been working on and obtaining results on quantum group formulation of the Baum-Connes conjecture a celebrated problem in Non-commutative Geometry. More precisely, let A be a discrete quantum group acting on a C*-algebra B satisfying some regularity assumptions, (analogous to the proper G-compact action for a classical discrete group G on some spaces). I have, in a joint work with D. Goswami constructed an analytic assembly map from the A-equivariant K-homology groups to the K-theory groups as well as provided a complete formulation of the Baum-Connes conjecture for the action of discrete groups. We also verified our formulation for general finite dimensional discrete quantum geoups and the dual of

SU_q(2). (See "A complete formulation of Baum-connes conjecture for the action of discrete quantum groups" K-theory Journal , 30, 341-363. (2003).

I do intend to test the conjecture for more examples of discrete quantum groups as well as formulate a variant of the conjecture for locally compact quantum groups.

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8) CONSTRUCTION OF NON-COMMUTATIVE ETALE COHOMOLOGY

I am currently working on a construction of a non-commutative etale cohomology which will be an extension of Soule's construction in the context of number fields to division and semi-simple algebras over number fields and orders in such algebras.

9) NON-COMMUTATIVE CHERN CHARACTERS OF LIE GROUP C*-ALGEBRAS AND QUANTUM GROUPS.

Also in Non-Commutative Geometry, I have been working on the construction and study of non-commutative Chern characters from K-theory of Lie Group C*-algebras and quantum groups to their entire/periodic cyclic homology groups. In joint works with D. N. Diep and N. Q. Tho, --- "Non-Commutative Chern characters of compact Lie group C*-algebras" K-theory Journal 17, (2) 195-208, 1999 and " Non-commutative Chern characters of compact quantum groups" Journal of Algebra, 226, 311-331. 2000. I am currently working on such connections between K-theory of locally compact and other non-compact quantum groups. Jointly with D. N. Diep, I already have a preprint "K-theory and Periodic Cyclic Homology of some non-compact quantum algebras"

10) EXTENSION TO WALDHAUSEN CATEGORIES OF MY RESULTS ON PROFINITE HIGHER K-THEORY OF EXACT CATEGORIES.

I am currently working on extending my recent results on Pro-finite Higher Algebraic K-theory of exact categories to Waldhausen categories.

XV.    **Publications**

A)       **Thesis/Dissertation**

1.A.O. Kuku: A survey of Algebraic K-theory, M.Sc. Ibadan, 1968 (written under Professor Joshua Leslie then at University of Ibadan)

2.A.O. Kuku:    On the Whitehead group of p-adic integral group-rings of finite p-groups. Ph.D. Ibadan, 1971 (Thesis written at Columbia University, New York, USA, under Professor

Hyman Bass)

**B)** <u>**RESEARCH ARTICLES**</u>

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21 A.O. Kuku (1999): Ranks of $K_n$ and $G_n$ of orders and group-rings of finite groups over integers in number fields **Journal of pure and Applied Algebra** 138 (1999), 39-44.

22 D.N. Diep, A.O .Kuku and N.Q. Tho (1999): Non-Commutative Chern characters of compact Lie group C*-algebra. **K-Theory Journal** (1999) 17(2) 195-208.

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47 A. O. Kuku (2011) Higher Algebraic K-theory of p-adic orders and twisted Polynomial and Laurent series rings over p-adic orders. COMMUNICATIONS IN ALGEBRA, 39, 10: 3801-3812.(2011)

48 A. O. Kuku (2010) Higher Algebraic K-theory of G-representations for the actions of finite and algebraic groups. In Group Theory— Classes, Representations and Connections and Applications. NOVA SCIENCE PUBLISHERS: pp 41-82.(2010)

49 A. O. Kuku (2010) Introduction to K-theory and Index theory: Lectures given at the Intenational CIMPA/UNESCO/BURKINA-FASO workshop on"Index theory and Interractions with Physics" .at the University Ouagadugou, Burkina Faso, May 2009. On line publication of CIMPA—Centre International de Mathematiques Pures et Appliquees.(2010)

50 A. O. Kuku (2010) Trends in Contemporary Mathematics: Illustrations from K-theory. In Proceedings of the Workshop on "Capacity building For Mathematical Sciences Lecturers in Tertiary Institutions. National Mathematical Centre, Abuja, Nigeria .pp 179-199.

51 A. O. Kuku (2013) Cohomology for Generalized Bredon Coefficient Systems and Higher K-theory .Journal of K-Theory: Applications to Algebra, Geometry and Topology (Published by Cambridge University Press) Vol 12, No 1, (2013) pp 99 – 113.

52 A. O. Kuku (2014) K-theory and Representation Theory: Illustrations with Algebraic Groups. South Pacific Journal of Mathematics, Volume 1, No 2, pages 30-48,

**(C)** <u>**Books and Monographs**</u>

53 A.O. Kuku (1980): Abstract Algebra, **Ibadan University Press** (Reprinted 1992, 2010) <u>xvii + 419</u> pages

54 A.O Kuku , E. Thoma, J. H. Rawnsley: (1985) Group Representations and its Applications.

**Les Cours du CIMPA, Nice, France (1985)**

55 A.O Kuku and C.A. Weibel (ed) (1989): **Proceedings of the Symposium on Algebraic K-theory,** Ibadan, 1989. **K-Theory Journal**

56 A.O. Kuku (1997): Basic commutative Algebra, **Lecture Notes Series, National Mathematical Centre, Abuja, Nigeria.**

57 A.O. Kuku (1997): Topics in Algebraic K-theory. **Lecture Note Series, National Mathematical Centre , Abuja Nigeria**.

58 H. Bass, A.O. Kuku and C. Pedrini (ed) (1999): Algebraic K-Theory and its Applications. **Proceedings of the Workshop and Symposium, Trieste, Italy. World Scientific, 1999. xii + 607 pages.**

59 M. Karoubi, A.O. Kuku and C. Pedrini (ed) (2003): "Contemporary Developments in Algebraic K-theory" **(Proceedings of the ICTP (2002) K-theory School** Dedicated to H. Bass on his 70th birthday). ICTP Lecture Notes Series (15) viii + 536 pages.

60 M. Karoubi, A.O. Kuku and C. Pedrini (ed) (2003): **Four special issues of K-theory Journal (Proceedings of (2002) ICTP K-theory Conference** dedicated to H. Bass on the occasion of his 70th birthday).

61 A. O. Kuku (Book) (2007) Representation Theory and Higher Algebraic K-theory, CHAPMAN AND HALL (Taylor Francis Group). xxvii + 442 pages

62 E. Friedlander, A. O. Kuku, and C. Pedrini(2008).(Ed) Recent Developments in Algebraic K-Theory. Proceedings of ICTP School on "Algebraic K- K-Theory and its Applications, May 14-26, 2007. ICTP Lecture Series (23), vii + 347 pages.

**(D)**     <u>**Articles On Topical Issues In Mathematical Research And Education, Science And Technology**</u>

63 A.O. Kuku (1988): Mathematics as a service subject –The African Experience. Selected papers on the teaching of mathematics as a service subject; R.R.Clemens et al (ed) **Springer-Verlag, New York. 53-67**.

64 A.O. Kuku (1988): Mobilisation and production of basic scientists for the development of Africa. **Proceedings of the First Congress of African Scientists, Brazzaville, Congo 223-234**.

65 A.O. Kuku (1988): Toward a more comprehensive Franco-African co-operation in mathematics, **Proceedings of Mathematiques a vneir' Societe Mathematique du France. Paris**.

66 A.O. Kuku  (1988): Mathematical Sciences and African Development – in
'**Relevant Education for Africa'**. B. Dkana and L.C. Rayapen (ed)
**PWPA 159-176**.

67. A.O.  Kuku  (1990): Networks in the context of new European
relationships and North-South   CO-development. **Proceedings of Prelude Congress Namur, Belgium**.

68 A.O. Kuku (1991): Mathematical Sciences and the development of Nigeria
**Discourses of The Nigeria Academy of Science**.

69 A.O. Kuku (1993): Capacity Building and Human Resources  for accelerated
development of Science and technology in Africa in Science in Africa:
**'Career strategies for graduate students' AAAS, 1993,19-22**.

70 A.O. Kuku (1993): Mathematical Research and Education in Africa. Problems
and   Prospects.   Joint   AMS-MAA-CMS-NAM   invited   Address,
Vancouver, 1993.

71 A.O. Kuku (1994): Mathematics as a universal language **Bulletin of the Mathematical Society** of Finland 1994.

72. A.O. Kuku (1994): Some perspectives on World Mathematics Year-WMY
2,000. **International Mathematical Union (IMU) Newsletter, 1994**)
No. pp. 1-2

73 A.O. Kuku (1994): African mathematical Union (AMU) and the challenges of
developing mathematical sciences in Africa. **London Mathematical Society Newsletter 1994**, pp. 1-3

74 A.O. Kuku (1995): Mathematical Education in Africa in relation to other
continents. **(Proceedings of the International Commission on Mathematics Instruction)** Conference, Monash University, Melbourne,
Australia, 1995, pp. 403-424.

75 A.O. Kuku (1996): Mathematics in AFRICA - an Appraisal. **TWAS   Newsletter**.

76. A.O. Kuku (1997): Science and Technology Literacy (SLT) and Numeracy:
Meanings and Rationales, **UNESCO book on 'Innovations in Science and Technology Education**. W. Jenkins (Ed.) pp.141-164

77. A.O. Kuku **(**2002**):** Mathematical Sciences and other Sciences. <u>**Proceedings of the African Symposium of Mathematical Olympiads, Tunis 9-**</u>24

78. A.O. Kuku (2001): Mathematics and the Development of Africa - The way forward.
**Proceedings of Arusha Conference on Mathematical Sciences and African Development**. 114-120

79. A.O. Kuku (2004): The Role of Mathematical Sciences in the Scientific,
Technological, Social and Economic Development of Nigeria, **<u>Nigeria</u>**

**Academy of Science** (2004).

80  A.O. Kuku (2005):    Mathematical Sciences and the development of Africa. Polimetrica, Italy, 75-81 (2005).

81   A. O. Kuku   (2006)    African Solutions to African Problems through Science and Technology. Invited Key-note Address at the congress of African Scientists and Policy Makers, Alexandria, Egypt. Oct 26-29, 2006.

82 A. O. Kuku (2010)   The role of Mathematics in the Scientific, Technological Development and Innovation in Africa. In "Science, Technology and Innovation for socio-economic development. ICSU-ROA. International council for Science --- Regional Office for Africa. pp 87 – 98 (2010)

83 A. O. Kuku (2011) Regional and International co-operation to strengthen Basic sciences in Africa. In C. Kiselman (Ed ) Regional and Inter-Regional co-operation to strengthen basic sciences in developing countries. Acta Universitatis Upsaliensis C. Organisation och Historia Upsala: Upsala University, Sweden.87-102. (2011)

84 A. O. Kuku (2011). Elementary Classifications of Various Mathematical Objects and Structures. Proceedings of the Capacity Building Workshop for Lecturers in Mathematical Sciences in Tertiary Institutions. National Mathematical Centre, Abuja, Nigeria. 158-169.

85. A. O. Kuku (2013) Mathematics as a Time-Tested Resource for Scientific, Technological, Socio-Economic and Intellectual Development. In: Mathematic Digests: Contemporary Discussions in Mathematics ICPAM-LAE, University of Goroka, Papua New Guinea. pp 22-33. 20

**XVI.    Biographical Listings**
1.Who's who in the World
2.Dictionary of international biography
3.International Who's who of Intellectuals
4.Men of Achievement
5.Men and Women of Distinction
6.Who's who in Africa
7.Who's who in Nigeria.

**XVI    Hobbies And Extra-Curricular Activities**
Ballroom Dancing, Chess, Table Tennis, Lionism-President Bodija Lions Club, Ibadan, Nigeria (1991-92 Lionistic year)

Melvin Jones Fellow, International Association of Lions Clubs, 1991-

# Appendix

*Summary of My Activities at ICTP(International Centre for theoretical Physics)
Trieste, Italy during  my Appointment  1995-2003*

by

## Professor Aderemi Oluyomi Kuku

1)From May to September 1995, as President of the African Mathematical Union, I organised from ICTP the Fourth Pan-African Congress of Mathematicians which took place at the AI-Ahakhawayn University, Ifrane, Maroc, September, 18-26, 1995. Apart from my numerous other contributions to the success of the Congress, I gave a plenary mathematics lecture on: "Higher class groups of orders and group-rings". It is note-worth that the General Assembly of the African Mathematical Union (AMU) unanimously decided to make me Honorary President of the AMU (for life) in appreciation of my nine years of meritorious service to the Union.

2)I have been in charge of weekly mathematics seminars at ICTP since July 1995, and I have been making mathematical contributions in several areas of mathematics during discussions at the seminars.

3)I initiated in March 1997, a series of specialised Algebra/Topology /K-theory seminars meant to explore deep connections between K-theory and other areas of mathematics – notable Algebra. Topology and geometry (Algebraic/Differential geometry/Non- Commutative geometry) as well as applications of K-theory to Mathematical Physics, Dynamical Systems, Econometrics and Control Theory.

4)I have been assessing and approving manuscripts of visiting mathematicians and Post-Docs for ICTP preprints/internal reports – since July, 1995

5)I completed the supervision of my Ph.D  student, Michael Alawode, who visited ICTP January to July, 1996.

6)I gave invited Colloquium/Seminar lecturer at:

  i)University of Edinburgh, U. K. (November, 1995)

  ii)University of Sussex, U. K. (November, 1995)

  iii)New Mexico State University, Las Cruces, USA, (March, 1996)

  iv)Fields Institute, Toronto, Canada, (March, 1996)

  v)Mathematiches Inst. Oberwolfach, Germany, (June 1996), September 1999

  vi)Universita di Genova, Italy, (June, 1996)

  vii)University of Lausanne, Switzerland, (November, 1996)

  viii)Universitat Bieldfeld, Germany. (February, 1997), March 1999

  ix)University of Ouagadougua, Burkina Faso, (May, 1997)

  x)University of Witwatersrand, Johannesburg, South Africa (June, 1997)

xi)Rand Afrikaans University Johannesburg, South Africa, (June, 1997)

xii)University of Cape Town, Cape Town, South Africa (June, 1997)

xiii)Rhodes University, Grahamstown, South Africa (June, 1997)

xiv)University of Stellenbosch, Stellenbosch, South Africa (June, 1997)

xv)University of Natal, Pietemaritzburg, South African (June 1997)

xvi)University of the Western Cape Bellvile, South Africa, (June 1997)

xvii)University of Port  Elizabeth, Port Elizabeth, South Africa (June, 1997)

xviii)University of the Free State, Bloemfontein, South Africa (June, 1997)

xix)University of Pretoria, Pretoria, South Africa, (June, 1997)

xx)University of Seattle, Washington, USA, (AMS Research meeting) July 1997.

xxi)Universite Lois Pasteur, Strasbourg, France, February, 1998.

xxii)Universite Paris VII, Paris, France, February, 1998.

xxiii)University of Trieste, Italy (October 1998)

xxiv)SISSA, Trieste, Italy (August, 1998)

xxv)University of Ljubljana, Slovenia (September, 1999)

xxvi)Sheriff University of Technology, Teheran, Iran (October, 2000)

xxvii)Dartmouth College, Hanover, New Hampshire USA (April, 2001)

xxviii)Univ. of Western Ontario, London, Ontario, Canada (April, 2001)

xxix)Univ. of Iowa, Iowa City (March, 2002)

xxx)Univ. of Poznan, Poland (May, 2002)

xxxi)Banach Centre, Warsaw ( May, 2002)

xxxii)Northwestern Polytechnical University, Xian, China (September, 2002)

xxxiii)Nanjing University, Nanjing China (September, 2002)

xxxiv)Tongji Univ., Shanghai, China (2002)

xxxv)Indian Statistical Institute, Delhi, India (October, 2002)


I have generally assisted the Head of Mathematics in diverse ways: e.g. I assisted him in the preparation of the proposal document for the 1997 Schools on Nonlinear Functional Analysis, Elliptic Curves, and Algebraic K-theory submitted to EEC. I have participated in the selection of Post-Docs, Visiting Mathematicians and Associates since 1995.

I was a local organiser for the 1996 school on 'Computer Simulation of Partial Differential Equations', September 9-27, 1997.

I was a Director as well as the Local organiser for the 1997 School on "Algebraic K-theory and its applications" and I was in charge of all correspondence connected with the school. I worked in co-operation with the two other Directors towards the publication of the Proceedings of he Workshop at the School. The two other Directors of the School are Professors H. Bass, (Columbia University, NY, USA) and C. Pedrini, (University of  Genova, Italy). The Proceedings was published by "World Scientific" (in 1999).

I was invited to be the 1997 Distinguished Visitor of the South African Mathematics Society – an honour awarded to only one mathematician in any year funds are available for such award. In this capacity, I gave invited colloquium/seminar lectures at eleven South African Universities. (See (6) x to xix above).

In June 1997, there was a joint American Mathematical Society, South African Mathematics Society, and

the London Mathematical Society conference in Pretoria, South Africa. I was invited together with Eric Friedlander of North –Western University, Evanston, Illinois, USA to organise a special session on Algebraic K-theory at the Pretoria meeting. I also gave an invited lecture at the meeting.

I was Director as well as local organizer for the 2002 School/Conference on Algebraic K-theory and its Applications dedicated in honour of H. Bass on his 70th birthday. There was a special issue of K-theory Journal (in four volumes) for the Proceedings of the conference as well as a book titled "Contemporary Developments in Algebraic K-theory" for the Proceedings of the School. The other two co-editors of the two publications are M. Karoubi (Paris 7) and C. Pedrini (Genova).

## International Conferences attended (with Papers read)

1. International Conference on Commutative Algebra, University of Fes. Morocco. June 5-10, 1995 **Invited Paper Read:** K-theory of Polynomial extensions.

2. 50$^{th}$ Anniversary Celebrations of UNESCO, ICMS, Edinburgh, UK, Nov. 95.

3. Fourth AMU Pan-African congress of Mathematicians Ifrane Morocco. **Invited Paper Read:** Higher Class Groups of orders and groupings

4. 10$^{th}$ Anniversary celebrations of the African Academy of science, Nairobi, Kenya, Dec., 1995.

5. Great Lakes K-theory conferences, Fields Institute, Toronto Canada, March 1-3, 1996. **Invited Paper Read:** Higher Class Groups of orders and groupings

6. International Conference on K-theory, Maths Inst., Oberwolfach, Germany, June 10- 15, 1996. **Invited Paper Read:** Equivariant K-theory for compact Lie Group actions.

7. 8$^{th}$ International Congress on Mathematics Education on Mathematics Education, Seville Spain, July 13-21, 1996. I co-organised a Working Group on International cooperation on Mathematics Education.

8. Second European Congress of Mathematics, July 21-28, 1996.

9. African Mathematical Union Workshop in Algebra, University of Ouagadougou, Burkina Faso, April 21-25, 1997. **Invited Lecture:** Equivariant Higher K-theory for Compact Lie Groups actions.

10. Joint AMS-SAMS-LMS meting, University of Pretoria, South Africa, June 25-28, 1997. **Invited Lecture:** Higher Class Groups of Orders and Integral Groupings.

11. AMS summer Research Conference, University of Seattle, Washington USA. July 12-25, 1997. **Invited Lecture:** Higher Class Groups and Continuous K-theory of p-adic orders.

12. ICTP Workshop/ Symposium on Algebraic K-theory and its application, 'Trieste, Italy, Sep. 1-19, 1997. **I was a Director** as well as Local organizer of the Workshop/Symposium.

13. Workshop on Algebraic K-Theory, Université Paris, VII, France. **Invited Lecture:** Non-Commutative Chern characters of compact Lie group C*-algebra.

14. Great Lakes Algebraic K-Theory meeting and Annual AMS meeting, University of Illinois, Urbana-Champaign. March, 1998.

15. International Congress of Mathematicians, Berlin, Germany. August 18-27, 1998.

16. 10th General meeting of TWAS, Trieste, Italy. December 9-10, 1998.

17. International Workshop on Stable Homotopy and Algebraic K-theory. Univesitaat Bielefeld, Germany. February 10-15, 1999.

18. International Conference on Non-Commutative Algebras, CIRM, Université Luminy, May 21-25, 1999.

19. International Conference on 'Algebraic K-Theory', Mathematisches Forschungsinstitut Oberwolfach, Germany. September 26 - October 2, 1999. **Invited Lecture:** Non-Commutative Chern characters of compact Lie group C*-algebras and compact quantum groups.

20. EXCITE (European Science centres) Annual Conference, Prague, Czech Republic, November 18-20, 2000. **Invited Lecture:** North-South cooperation for global literacy and numeracy.

21. TWAS General Conference and AFRISTEC Meeting, Dakar, Senegal. November 21-26, 1999.

22. 5th AMU Pan-African Congress of Mathematicians, University of Western Cape, Cape Town, South Africa. **Invited Plenary Lecture:** Chern characters in non-commutative geometry.

23. International Workshop on Arakelov Geometry, Université Montpellier II, France. May 26-27, 2000.

24. TWAS General Meeting, Teheran, Iran. October 21-26, 2000.

25. First Pan-African Symposium of Mathematics Olympiads, Tunis, Tunisia. November 1-6, 2000. **Invited Plenary Lecture:** Mathematical sciences and other sciences.

26. Science Institute group (SIG)/African Academy of Sciences (AAS) meeting on "Millennium Science Initiatives in Africa", Nairobi, Kenya. November 14-16, 2000. **Invited Lecture:** Mathematical Sciences vis-à-vis basic sciences in Africa.

27. International Conference on "Recent Advances in the Mathematical Sciences" --- To celebrate the 50th Anniversary of the Indian Institute of technology, (ITT), Kharagpur, India. December 20-22, 2000. Invited **Keynote Address:** Continuous cohomology and Higher K-Theory of exact categories.

28. International Conference on Geometric Analyses and Index Theory, Trieste, Italy, March 18-24, 2001. **Invited lecture**: Equivariant Hopf-algebra KK and Index theories.

29. International Conference on Quantum Field Theory, Non-Commutative Geometry and Quantum Probability, March 26-29, 2001. I was member of the Scientific Committee for this meeting.

30. Great Lakes K-theory Conference, Evanston, Illinois, April 20-22, 2001

31. High Dimensional Manifold Topology - Workshop Conference, May 21- June 8, 2001

32. International Conference on Topology and its Applications. Norfdjordeid, Norway, August 6-10, 2001. **Invited lecture**: Profinite and continuous Higher K-theory of exact categories, schemes, orders and group-rings

(To be updated)

**7) Publication/Preprints since Joining ICTP**

*a) Research Articles / Monograph:*

i) A.O. Kuku (1995): Algebraic K-theory and some other areas of mathematics. <u>Proceedings of the Third Pan-African Congress of mathematicians.</u> 81-100, 1995

ii) A.O. Kuku (1996): Higher K-theory of modules over E1 categories <u>Afrika Matematika</u>, 3(6) 15-27, 1996.

iii) A.O. Kuku (monograph) (1997): Topics in Algebraic K-theory, <u>Lecture notes series, National Mathematical Centre, Abuja, Nigeria</u> (1997)

iv) A.O. Kuku (1999): Ranks of $K_n$ and $G_n$ of orders and groupring of finite groups over integers in number field. <u>Journal of Pure and Applied Algebra</u> 138 (1999) 39-44

v) D.N. Diep, A.O. Kuku and N.Q. Tho, (1999): Non – Commutative Chern characters of compact lie group C*-Algebras.. <u>K-Theory</u> Journal, (1999) 17(2) 195-208.

vi)H. Bass, A O. Kuku and C. Pedrini (1999): (ed.) Algebraic K-theory and its Applications, proceedings of the Workshop and Symposium, Trieste, Italy. (World Scientific. 1999)

vii)D.N. Diep, H.H. Fung and A.O. Kuku (1999): Compact quantum group C*-algebras as Hopf algebras with approximate units (preprint)

viii)A O. Kuku (2000): Equivariant Higher K-theory of Compact Lie Group Actions. Beitrage Zur Algebra and Geometric (41) (2000) No 1 141-150.

ix)D.N. Diep, A.O. Kuku and N.O. Tho (2000): Non Commutative Chern Characters of Compact quantum groups. Journal of Algebra 226, 311-331 (2000).

x)A.O. Kuku (2000): Profinite and Continuous K-theory of Exact categories, orders and group rings. K-Theory Journal 22, 367-392 (2001).

xi)A.O. Kuku (2000): Classical Algebraic K- theory i.e. the Functors $K_0$, $K_1$, $K_2$ (Handbook of Algebra) Elsevier. 157-196 (2003).

xii)A.O. Kuku (2000): Higher dimensional class groups of grouprings and orders in algebras over number fields (Preprint)

xiii)A.O. Kuku (2001): Continuous cohomology and Higher K-theory of exact categories: In "Applicable Mathematics - Its Perspectives and Challenges" J.C. Misra (ed) Nasora Publishing House, New Delhi, India. pp. 43-51.

xiv)A.O. Kuku and W. Tang (2001): An explicit computation of the "bar" homology groups of a non-initial ring. "Betrage zur Algebra und Geometrie - Contributions to Algebra and Geometry. 44 (2), 375-382 (2003)

xv)A.O. Kuku and G. Tang (2002): Higher K-theory of group rings of virtually infinite cyclic groups. "Mathematisches Annalen", 325, 711-726 (2002).

xvi)A.O. Kuku and M. Mahdavi-Hezabehi (2002): Subgroups of $GL_n(R)$ for local rings R "Communications in Algebra." 32 (5) 1895-1902 (2004)

xvii)D. Goswami and A.O. Kuku (2002): Towards the Baum-Connes Analytical Assembly map for the actions of Discrete quantum groups (Preprint).

xviii)D.N. Diep and A.O. Kuku: Non-commutative Chern-Connes characters of some non-compact quantum algebras. (Preprint).

xix)D. Goswami and A.O. Kuku: A complete formulation of Baum-Connes conjecture for the action of discrete quantum groups. "K-theory Journal" 30, 344-363,(2003)

xx)X. Guo and A.O. Kuku (2003): Wild kernels for higher K-theory of division and semi-simple algebras .Beitrage zur algebra und Geometrie—Contributions to Algebra and Gerometry. 47, 910. 1-14.(2006)

xxi)X. Guo, A.O. Kuku and H. Qin (2003): On $K_2$ of division algebras. Communications in Algebra. 33, 4, 1073-1081.

xxii)D.N. Diep and A.O. Kuku (2003): K-theory and periodic cyclic homology of some non-compact quantum algebras (Preprint).

(To be updated)

*b)*     *Other articles*

(i)     A.O. Kuku (1997): Science and Technology Literary and Numeracy: Meanings and Rationales. **UNESCO BOOK ON "Innovations in Science and Technology Education**" 141-164 1997.

(ii)     A.O. Kuku (2000): Mathematical Sciences and other Sciences. Proceedings of the first Symposium on Pan African Mathematics Olympiads, Tunis. Already appeared.

(To be updated)


## 15.     Mathematical Interactions with and /or Guidance of Visiting Mathematician and post. Docs at ICTP Since 1995

*Below are Mathematicians I have interacted with and/or guided:*

1. M. Mahdavi, (Iran), Algebra, June-September, 1995
2. U. M. Markafi, (Nigeria), Group Theory, may-October. 1995
3. M/ Cipu, (Romania), Commutative Algebra, July-September, 1995
4. C. Kalisa, (Rwanda) Harmonic Analysis, July – August, 1995
5. Y. Yang (China) Algebra, November 1995 to January 1996.
6. A. Susslin (Russia/USA) K-theory, July 1995
7. C. Pedrini, (Italy) K-theory, October, 1995
8. F. Torres, (Brazil/Peru) July 1995 to February 1996
9. Z. Tang. (China), Topology, may-August, 1996
10. M. Alawode (My Ph. D Student). K-theory, January-June 1996
11. R. Laubenbacher, (USA), K-theory, May, 1996
12. B. O Balogun , (Nigeria), Algebra, May-Sept. 1996
13. M. Khalkkali, (Canada, Iran), Cyclic Homology, May-August, 1996
14. Y. Alamu, (Ethiopia), Number Theory, July/August 1996
15. M. Berhani, (Morocco), Functional Analysis, August-September  1996
16. J. Ye, (China), Algebraic groups, May-Sept. 1996.
17. A. Babour, (Egypt), Algebraic Topology, July/August, 1996
18. V. Furtomy, (Ukraine) Lie Algebra, July, 1996
19. A. Bandhari, (India), Algebra, August, 1996
20. D. N. Diep, (Vietnam), K-theory/C-algebra, August/Sept. 1996, 1997, 1998, 2001
21. I. Gelfand, (USA), Miscellaneous, August, 1996
22. H. Hamaraous, (Morocco), K-theory, October, 1996
23. A. Bak, (Germany), K-theory, October, 1996
24. F. Kuene, (Netherlands), K-theory, October 1996
25. S. Kabaj. (Morocco), Commutative Algebra, August/September 1996
26. J. Browkin, (Poland), K-theory/Number theory, March, 1996
27. H. Qin, (China), K-theory/ Number theory. Jan, 1997 to July 1998
28. H. Y. Ahmed, (Jordan), Algebra, March-August, 1997
29. K. Ayegmon, (Benin) Commutative Algebra, July – November, 1997
30. J. Juyamaya, (Chile), Algebra, February 1997 to September 1997, Aug-Oct. 1998; Aug-Nov 2000

31. H. H. Phung (Vietnam), Algebra/ /Quantum Groups, Sept. 1997 to June 1998; April 1999

32. S. Yassemi, (Iran), Commutative Algebra, June-Sept., 1997

33. P. A. Tirao, (Argentina), Lie Groups/Algebras, September 1997 to Dec 1998

34. N. Bitijong, (Cameroon), Algebraic Topology, May to October, 1997
    July/August 1998

35. S. Jayasree (India). Algebraic Number theory, July-September 1997

36. Q. I. Nguyen, (Vietnam), Algebraic Groups, June – September, 1997; April-July 2000

37. V. Gnedbaye (Chad) Homological Algebra, January 1998 to Feb. 1999

38. R. Dehy (Iran) Lie Algebras, January 1998 to Dec. 1998

39. A. Dzhumadidaer  (Kazakhstan). Lie algebras, July/August 1998

40. A. A Darlov (Russia) Representation Theory, July/August 1998

41. A. Karabegov. (Russia) Quantization, August/September 1998

42. E. Desquith (Cote D'Ivoire) Algebra/Functional Analysis Sept-Nov., 1998

43. X. Ma (China) Topology, October – December 1998

44. G. S. Li (China) Topology, October 1998 to January 1999.

45. D. Ban (Croatia) Complex Manifolds, Jan-July, 1999

46. S. Asin-Lares (Mexico) Symplectic Geometry. January 1999 to July 1999

47. M. Chen (China) Algebraic Geometry. January-November, 1999

48. J. L Cianerce – Moiina (Mexico) Geometry/Topology. Feb-July, 1999

49. A. Wade (Senegal) Differential Geometry/Topology, January  to June 1999

50. M. Elhamdadi (Morocco) Topology/K-theory. February – August, 1999

51. P. Hajac (Poland) Non-commutative Geometry June-October, 1999; May-June 2000

52. T. Farrell (USA), Topology/K – theory, October November, 1999.

53. R. Joshua (USA) K-theory / Alg Geometry, April-May, 1999

54. G. Tang (China) K-theory January 2000 to July 2001.

55. M. K. L. Thakur (India Non-Associative Algebraic Structures, June to December 2000

56. H. Rui (China), Representation Theory/Hecke Algebras. April-Sept. 2000

57. A. Tsemo (Cameroon) Geometry/Affine Manifolds, Jan. 2001 to Feb. 2002

58. A. Rahnamai Barghi (Iran), Algebra/group Theory, Jan. 2001 to July 2002

59. C. Eyrab (France), Topology/Geometry, May 2001 to August 2002

60. N. Ourimi (Tunisia), Complex Geometry, June 2001 to Feb. 2002

61. D. Goswami (India), Non-commutative Geometry, Jan to August 2002

62. X  Guo (China) K-theory and Arithmetic, Jan 2003 to Dec. 2003


(To be updated)


16. **ICTP Diploma Courses – Teaching and  Dissertation Supervision**

I taught an ICTP Diploma course in Differential Geometry. (30 hours February to May , 1996)

I taught an ICTP Diploma course "Abstract Algebra" (30 hours) October to December, 1996;
    "Abstract Algebra" course (30 hours October to December, 1997.

In 1997, I supervised the Dissertation of Two Diploma students, G. Degla, and D. Malonza. The

title are:

G. Degla:       Algebraic K-theory and Cyclic Homology

D. Malonza:     Structure of Mackey Functors with some applications

iv)     In 1999, I supervised the Dissertation of B. K. Karna. The title is: Representation Rings of Finite groups

v)      I supervised two ICTP Diploma Research Projects in 2000 as follows:

1)      Charles Pooh: Grothendieck group of vector bundles over classifying spaces of compact Lie groups

2)      Ganesh Bhandari: Witt rings and Galois groups.

(vi)    I supervised an ICTP Diploma Research project in 2001 as follows: S. Biglari: An Introduction to Presheaves with Transfers and Motivic Cohomology

(vii)   I supervised an ICTP Diploma research project in 2003 as follows.

Jorge Plazas: A Survey on the Baum-Connes conjecture.

(NOTE:  ICTP DIPLOMAS ARE EQUIVALENT TO M.Sc/M.Phil)