VITÆ

Mahouton Norbert Hounkonnou

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Contents

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2 Professional Address:

University of Abomey-Calavi
International Chair in Mathematical Physics and Applications
(ICMPA - UNESCO Chair)
072 B.P. 50 Cotonou, Republic of Benin
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and
TWAS Research Professor (2008 - present)
University of Zambia
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3 Education

3. D. Sc. *summa cum laude* in Mathematics & Physics, Catholic University of Louvain, Belgium, 1992.
2. Diplôme d'Etudes Approfondies (DEA), valedictorian (graduated top of his class), University of Perpignan, France, 1989.
1. Master of Sciences (M.Sc.) *summa cum laude*, valedictorian, Polytechnic Institute of Kharkov, Ukraine (ex USSR), 1984.

4 Professional Experience:

4.1 Regular positions

6.- 2001 - present: Chair Holder, International Chair in Mathematical Physics and Applications (ICMPA-UNESCO Chair)
University of Abomey-Calavi
072 B.P.: 50, Cotonou
Republic of Benin.
5.- 2000 - present: Full University Professor of Mathematics and Physics, (Professeur Titulaire de Physique Mathématiques des Universités, Conseil Africain et Malgache pour l'Enseignement Superieur (C.A.M.E.S.) 2000)
University of Abomey-Calavi
B.P.: 525, Cotonou
Republic of Benin.
4.- 1996 - 2000: Professor *with rank A*, (Maitre de Conférences, C.A.M.E.S. 1996, *avec la côte A*)
Institute of Mathematics and Physical Sciences
University of Abomey-Calavi
B.P.: 613, Porto - Novo
Republic of Benin.
3.- 1994 - 1996: Associate Professor *with rank A*, (Maitre-Assistant, C.A.M.E.S. 1994 *avec la côte A*)
Institute of Mathematics and Physical Sciences
University of Abomey-Calavi
B.P.: 613, Porto - Novo
Republic of Benin.
2.- 1992 - 1993: Research Fellow, Free University of Brussels, BRUSSELS, Belgium.
1.- 1984 - 1989: Assistant Lecturer
University of Abomey-Calavi
B.P.: 526, Cotonou
Republic of Benin.

4.2 Relevant visiting appointments

53.-. Visiting Professor
Faculté des Sciences et Ingénierie - UMR 5566 Laboratoire des Etudes en Géophysique et Océanographie Spatiales, Université Toulouse III Paul Sabatier, France, May 2019.

52.-. Visiting Professor
Fundamental Mathematics Research Group, Department of Mathematics and Computer Science, University of Antwerp, Belgium, April 2019.
51.-. TWAS Research Professor
University of Zambia, Lusaka, December, 2018.
50.-. Visiting Professor
Department of Mathematics, Tokyo University of Sciences, Tokyo, Japan, April–May, 2015.
49.-. TWAS Research Professor
University of Zambia, Lusaka, January, 2015.
48.-. Visiting Professor
Centre International Bernoulli, Ecole Polytechnique Fédérale de Lausanne, Switzerland, October-December, 2014.
47.-. TWAS Research Professor
University of Zambia, Lusaka, November - December, 2013.
46.-. Visiting Professor
Centre International Bernoulli, Ecole Polytechnique Fédérale de Lausanne, Switzerland, September, 2013.
45.-. TWAS Research Professor
University of Zambia, Lusaka, June and December, 2012.
44.-. Université Paris 7 (France)
Professeur invité, November, 2011.
43.-. TWAS Research Professor
University of Zambia, Lusaka, September, 2011.
42.-. African Institute for Mathematical Sciences (AIMS Senegal) Launch, September 3th and 8th, 2011.
41.-. Université Paul Sabatier de Toulouse
Professeur invité, June, 2010.
40.-. TWAS Research Professor
University of Zambia, Lusaka, April, 2010.
39.-. Université Paul Sabatier de Toulouse
Professeur invité, June, 2009.
38.-. Université Paris Sud XI
Professeur invité, June, 2009.
37.-. Université de Lomé (Togo)
Professeur invité, November, 2008.
36.-. Université Paris Sud XI

Centre Scientifique d'Orsay (France)
Professeur invité, June, 2008.
35.-. TWAS Research Professor
University of Zambia, Lusaka, April, 2008.
34.-. Fourth meeting of the Scientific Board of the International Basic Sciences Programme (IBSP), Room XIV, UNESCO Headquarters, 1 rue Miollis, Paris, 17 - 18 Mars 2008.
33.-. Third meeting of the Scientific Board of the International Basic Sciences Programme (IBSP), Room XIV, UNESCO Headquarters, 1 rue Miollis, Paris, March 19 - March 20, 2007.
32.-. Université de Lomé (Togo)
Professeur invité, November, 2006.
31.-. African Union First African Congress of Scientists and Policy Makers
Alexandria, Egypt, October 27 - October 29, 2006.
30.-. Université de Perpignan (France)
Professeur invité, July, 2006.
29.-. Université Paris Sud XI
Centre Scientifique d'Orsay (France)
Professeur invité, March, 2006.
28.-. Second meeting of the Scientific Board of the International Basic Sciences Programme (IBSP), Room XIV, UNESCO Headquarters, 1 rue Miollis, Paris, March 20 - March 21, 2006.
27.-. Université Paris Sud XI
Centre Scientifique d'Orsay (France)
Professeur invité, July, 2005.
26.-. Université du Bénin (Togo)
Professeur invité, March - April, 2005.
25.-. International UNESCO/ICSU/TWAS Symposium on the follow-up to the World Conference on Science (WCS), Harnessing science for society: further partnerships Venice, Italy, March 2- March 5, 2005.
24.-. First meeting of the Scientific Board of the International Basic Sciences Programme, Room VII, UNESCO Headquarters, 7 Place de Fontenoy, Paris, 30-31 January 2005.
23.-. Department of Mathematics and Statistics
Concordia University (Canada)
Visiting Professor, May, 2004.
22.-. Center for Mathematical Sciences Research
(Rutgers, The State University of New Jersey, USA)
Visiting Professor, April, 2004.

21.-. 2nd Meeting of the Ad Hoc Committee of Experts for the International Basic Sciences Programme (IBSP), Venice, Italy, 9-10 January 2004.
20.-. African Institute for Mathematical Sciences (AIMS) Launch, September 18th and 19th, 2003.
19.-. Université Paris Sud XI
Centre Scientifique d'Orsay (France)
Professeur invité, June, 2003.
18.-. Meeting of the Ad Hoc Committee of Experts for the International Basic Sciences Programme (IBSP), Room XIV, UNESCO Headquarters, 1 rue Miollis, Paris 19-20 May 2003.
17.-. Université Paris Sud XI
Centre Scientifique d'Orsay (France)
Professeur invité, June - July, September - October, 2002.
16. European Physical Society General Meeting, Trends in Physics, Budapest, Hungary, 26 - 30 August, 2002.
15.-. Université Paris Sud XI
Centre Scientifique d'Orsay (France)
Professeur invité, June, September, 2001.
14.-. Université du Bénin (Togo)
Professeur invité, April, 2001.
13.-. Université Paris Sud XI
Centre Scientifique d'Orsay (France)
Professeur invité, June, 2000.
12.-. Université du Bénin (Togo)
Professeur invité, April, 2000.
11.-. Université Paris Sud XI
Centre Scientifique d'Orsay (France)
Professeur invité, June, 1999.
10.-. Catholic University of Louvain, Belgium
Professeur invité, September, 1999.
9.-. Département de Statistique
Facultés Agronomiques de Gembloux, Belgium
Professeur invité, March, 1999.
8.-. Catholic University of Louvain, Belgium
Professeur invité, July - October, 1998.
7.-. Centre de Physique Théorique (CPT),
CNRS - Luminy, 13288 Marseille Cedex 9, France

Professeur invité, October, 1998.
6.-. Laboratoire de Cosmologie et Relativité Générale
Université de Paris VII, Jusssieu (France)
Professeur invité, October, 1998.
5.-. Université Paris Sud XI
Centre Scientifique d'Orsay (France)
Professeur invité, October, 1998.
4.-. Pennsylvania State University, Department of Mathematics
University Park, PA 16802
Visiting Professor, August, 1997.
3.-. Centre de Recherches Mathématiques de Montréal, Montreal, Canada
Visiting Professor, August-September, 1997.
2.-. Catholic University of Louvain, Belgium
Professeur invité, November - December, 1995.
1.-. Catholic University of Louvain, Belgium
Professeur invité, November - December, 1994.

5 Other Professional Experience

5.1 Master and PhD thesis supervised

5.1.1 Main PhD thesis supervised

35.-. Fridolin Melong (from Cameroon), PhD 2020 in Mathematics, (*Characterization of Witt, Witt $n-$ algebras, Virasoro algebras, conformal Virasoro algebras and KdV equations from $\mathcal{R}(p,q)-$ deformed quantum algebras*).
34.-. Gbêvèwou Damien Houndedji (from Benin), PhD 2019 in Mathematics, (*Antisymmetric and ternary associative infinitesimal (hom-)bialgebras and their representations*).
33.-. Mafoya Landry Dassoundo (from Benin), PhD 2019 in Mathematics, (*Flexible and anti-flexible algebras, bialgebras and their representations*).
32.-. Remi Cocou Avohou (from Benin), (with Dr Joseph Bengeloun), PhD 2015 in Mathematics, (*On Generalized Graphs, polynomial invariants and applications*).
31.- Sama Arjika (from Niger), PhD 2015 in Mathematical Physics, (*Deformed Heisenberg algebras, coherent states and special functions*).
30.- Olusegun Patrick Adebisi Adegbuyi (from Nigeria), (with Prof. Ganiyu Ishola Lawal), PhD 2014 in Mathematical Physics, (*Modelling of the effect of casting dynamics on the mechanical properties of Al* 6063).

29.-. Yélognissé Casimir Da-Allada (from Benin), (with Prof. Yves Du-Penhoat), PhD 2013 in Physical Oceanography and Applications (*Salinité océanique de surface dans l'océan Atlantique tropical : variabilités saisonnières à interannuelles*).

28.-. Joseph Désiré Bukweli Kyemba (from Democratic Republic of Congo), PhD 2012 in Mathematical Physics and Functional Analysis, (*Quantum Deformed Algebras: Coherent States and Special Functions*).

27.-. Ngidioni Guillaume Komawila (from Democratic Republic of Congo), (with Prof. Pascal Lambrechts), PhD 2012 in Mathematical Physics, (*Euler series, Stirling numbers and the growth of the homology of the space of long links*).

26.-.Iyela Daddy Balondo (from Democratic Republic of Congo), (with Prof. Jan Govaerts), PhD 2012 in Mathematical Physics, (*Mécanique quantique supersymétrique des systèmes quantiques intégrables à une et deux dimensions, et déformation de Klauder-Daubechies*).

25.-. Kibamba Nestor Anzola (from Democratic Republic of Congo), (with Prof. Pierre Bieliavsky), PhD 2012 in Mathematical Physics, (*Détermination au niveau de l'analyse fonctionnelle dun opérateur dentrelacement entre les quantifications géométriques de Kirillov-Weyl et BargmannFock*).

24.-. Dine Ousmane Samary (from Benin), PhD 2011 in Mathematical Physics, (*Noncommutative Solvable Models in Quantum and Field Theories*).

23.-. Isiaka Aremua (from Togo), PhD 2011 in Mathematical Physics, (*Matrix Vector Coherent States for Multilevel Particles*).

22.-. Pascal Alain Dkengne Sielenou (from Cameroon), PhD 2011 in Mathematics, (*Analytical Methods for Solving Nonlinear Models and Variational Problems*).

21.-. Comlan Hounga (from Benin), PhD 2009 in Mathematical Physics, (*Nonlinear Généralisation des polynômes orthogonaux et les équations de Laguerre-Freud*).

20.-. Elvis Ngompe Nkouankam (from Cameroon), PhD 2009 in Mathematical Physics, (*Nonlinear Deformed Systems and Algebras: Generalized Coherent States and Quantum Special Functions*).

19.-. Aderibigbe Anjorin (from Nigeria), PhD 2007 in Mathematics, (*Symmetries of Heun's Operators, Factorization and Basic Sets of Chebychev Polynomials*).

18.-. Mahaman Kabir Mahaman (from Niger), PhD 2007 in Mathematics, (*Symmetry Analysis of Nonlinear Hydro - Biological Models*).

17.-. Joseph Ben Geloun (from Senegal) (with Prof. J. Govaerts), PhD 2007 in Mathematical Physics, (*Nonlinear Models in Noncommutative Geometry:*
Part. I. Nonlinear Solvable Models: Deformed Spin-Orbit and Landau Operators
Part II. Symmetries and Nonlocal Aspects of Noncommutative Field Theory (a Nonperturbative Study)).

16.-. Komi Sodoga (from Togo), PhD 2005 in Mathematical Physics, (*Sturm-Liouville Differential Operator: Factorization and Solvable Potentials*).
15.-. Laure Gouba (from Burkina-Faso) (with Prof. J. Govaerts), PhD 2005 in Mathematical Physics, (*Théories de Jauge Abéliennes Scalaire et Spinorielle à 1 + 1 Dimensions*).
14.-. Gaston Edah (from Benin) (with Prof. B. Piraux), PhD 2004 in Theoretical Physics, (*Description du double continuum de deux électrons émis dans le champ du noyau*).
13.-. Antonin Danvidé Kanfon (from Benin) (with Prof. D. Lambert), PhD 2003 in Theoretical Physics, (*Description de l'inflation et de la quintescence à l'aide du couplage $F-$harmonique et gravitation*).
12.-. Gabriel Yves Hugues Avossevou (from Benin) (with Prof. J. Govaerts), PhD 2002 in Theoretical Physics, (*Problèmes de Quantification Canonique: 1. Modèles Solubles en Mécanique Quantique Relativiste: Cas des Interactions δ - sphériques; 2. Théories de Yang-Mills et Etats Physiques en $0+1$ et $1+1$ Dimensions*).
11.-.Luwaka Mutuba (from Democratic Republic of Congo), PhD 2002 in Theoretical Physics, (*Approche Sturmienne dans l'Ionisation Multiphotonique de l'Atome d'Hélium*).
10.-. Eugene Ezin, (from Benin), (with Prof. M. Marimaro), PhD 2001 in Mathematical Physics, (*Neural networks and neural fuzzy systems for speech applications*).
9.-. Bernardin Ahounou, (from Benin), (with L. Paquet), PhD 2001 in Mathematics, (*Equations de boussinesq en présence de thermocapilarité avec conditions aux limites non homogènes*).
8.-. Jean El-Bachir Mendy, (from Senegal), (with Prof. Jan Govaerts), PhD 2001 in Mathematical Physics, (*Etudes des processus quantiques neutrinos-leptons au-delà du modèle standard*).
7.-. Yébéni Kouagou (from Benin) (with Prof. J-P Antoine), PhD 2000 in Mathematical Physics, (*Transformations en ondelettes discrètes: une approche utilisant des pseudodilatations*).
6.-. Amétépé Hohoueto (from Benin) (with Prof. J-P Antoine), PhD 1999 in Mathematical Physics, (*On some discrete relativistic frames*).
5.-. Gerard Lagmago (from Cameroon) (with Kwato Njock), PhD 1999 in Theoretical Physics, (*Semi-classical approches to dipole radial integral for nonhydrogenic ions and two active electron system in intensive Laser field*).
4.-. John Tatini Titantah (from Cameroon) (with Prof. J. P. Ryckaert), PhD 1999 in Theoretical Physics, (*A Quantum Statistical Model of a Three-Dimensional Linear Rigid Rotator in a Bath of Oscillators And Computer Simulation of Polymer Solutions*).
3.-. Mama Foupouagnigni (from Cameroon) (with Prof. A. Ronveaux), PhD 1998 in Mathematical Physics, (*Laguerre-Hahn Orthogonal Polynomials with respect to the Hahn Operator: Fourth-order Difference Equation for the rth Associated and the Laguerre-Freud*

Equations for the Recurrence Coefficients).
2.-. Mathias Hounkpe (from Benin) (with Prof. Juma Shabani), PhD 1997 in Mathematical Physics, (*Théorie de la Diffusion par des Potentiels δ-Sphériques de Première et Deuxieme Espèces en Mécanique Quantique Non-Relativiste*).
1.-. Patrick Navez (from Belgium), PhD 1995 in Theoretical Physics, (*Relaxation Diélectrique et Biréfringence Electrique de Rotateurs Linéaires Rigides en Milieux Thermalisés*).

5.1.2 Main Master thesis supervised

24.- Jonas Fanou (Benin), M. Sc. 2018 (*n− Poisson manifold, tripe Poisson algebras and their characterization*)
23.- Cyrille Kakpo (Benin), M.Sc. 2018 (*Landau problem in noncommutative phase space*)
22.- Mahougnon Justin Landalidji (Benin), M.Sc. 2017 (*Recursion operator in the noncommutative Minkowski phase space*).
21.- Landry Dassoundo (Benin), M.Sc. 2014 (*On left-symmetric bialgebras and some left-symmetric algebras of the* 4*-dimensional Heisenberg Lie algebra*).
20.- Damien Houndedji (Benin), M.Sc. 2014 (*Double constructions of Heisenberg Frobenius algebras, Connes cocycles and their duality*).
19.- Ilwale Kwalombota (Zambia), M. Sc. 2014 (*Anyons and deformed Lie algebras*).
18.- Arjika Sama (Niger), M.Sc. 2011 (*Polynômes q−classiques: tableaux d'Askey et de Nikiforov-Uvarov*).
17.- Aremua Isiaka (Togo), M. Sc. 2007 (*Etats Cohérents Vectoriels des Systèmes Hamiltoniens non-Dégenérés*).
16.- Dine Ousmane Samary (Benin), M. Sc. 2007 (*Tenseur energie-impulsion en theorie scalaire sur des espaces-temps non commutatifs*).
15.-. Komi Sodoga (from Togo), M.S. 2002 (*Paramétrisation du Problème Quantique à N Corps en Physique Moléculaire: Cas de la Molécule HCN*).
14.-. Mohamed Naciri (from Morocco) , M.S. 1999 (*Création de Particules Dans un Espace à d+1, (d=3,2,1), Dimensions*).
13.-. Gaston G. Edah (from Benin), M.S. 1999 (*Décomposition de l'Opérateur de Green en Polynomes de Faber*).
12.-. Antonin D. Kanfon (from Benin), M.S. 1999 (*Contribution Théorique à l'Etude des Neutrinos Massifs*).
11.-. Ezinvi Baloitcha (from Benin), M.S. 1998 (*Paramétrisation Hypersphérique du Problème à n Corps en Mécanique Quantique Non - Relativiste*).
10.-. Gabriel Avossevou (from Benin), M.S. 1998 (*Théorie de la Diffusion par des potentiels δ-Sphériques de Deuxième Espèce en Mécanique Quantique Relativiste*).

9.-. Alfred Vyabandi (from Burundi), M.S. 1998 (*Théorie de la Diffusion par des potentiels δ-Sphériques de Première Espèce en Mécanique Quantique Relativiste*).
8.-. Mutamba Panga (from Democratic Republic of Congo), M.S. 1998 (*Déformation du Groupe de Poincaré*).
7.-. Jean El Bachir Mendy (from Senegal), M.S. 1998 (*Théorie du Neutrino en Présence de Champs Extérieurs*).
6.-. John Tatini Titantah (from Cameroon), M.S. 1995 (*Dielectric Properties of a Rigid Rotator in 3D: A Quantum Statistical Mechanics Approach*).
5.-. Mazita Mombi (from Democratic Republic of Congo), M.S. 1995 (*Potentiels Solubles pour l'Equation Differentielle de Heun et ses Formes Confluentes*).
4.-. Luwaka Mutuba (from Democratic Republic of Congo) (withProf. Jean Pestieau), M.S. 1995 (*Description du Charmonium et du Bottomonium par des Potentiels Logarithmique et Exponentiel*).
3.-. Mama Foupouagnigni (from Cameroon) (with Prof. André Ronveaux), M.S. 1995 (*Equations de Laguerre-Freud: Cas des Polynômes Orthogonaux Semi-Classiques de Classe 2*).
2.-. Lionel Hohouéto (from Benin), M.S. 1995 (*Les Etats Cohérents du Groupe de Poincaré à Masse non Nulle*).
1.-. Kamta Gérard Lagmago (from Cameroon) (with Dr Njoc'k Kwato), M.S. 1995 (*Contribution à l'Approximation Semi-Classique Dans le Calcul des Intégrales Radiales Dipolaires*).

5.2 Referee of papers submitted to (most frequently):

- **Journals of Mathematics and Mathematical Physics**:

  20.-. Journal of Contemporary Mathematical Analysis (2019–present)

  19.-. Integral Transforms And Special Functions (2017–present)

  18.-. Journal of Mathematical Analysis and Applications (2016–present)

  17.-. Journal of Mathematical Inequalities (2016–present)

  16.-. Report on Mathematical Physics (2016–present)

  15.-. Differential equations and Applications (2014 - present)

  14.-. Geometry, Integrability and Quantization (also *Associate Editor*)(2013-present)

  13.-. Arab Journal of Mathematical Sciences (Elsevier)

  12.-. Open Journal of Differential Equations

  11.-. Electronic Journal of Differential Equations (2011 - present)

10.-. Afrika Matematica (also *Associate Editor*) (2009 - present)

9.-. Communications in Mathematical Analysis (also *Associate Editor*) (2009 - present)

8.-. African Diaspora Journal of Mathematics (also *Associate Editor*) (2009 - present)

7.-. Advances in Mathematical Physics (also *Member of the Editorial Board*) (2008 - present)

6.-. Applied Mathematics Letters (2008 - present)

5.-. Journal of Mathematical Physics (2008 - present)

4.-. Computers and Mathematics with Applications (2007 - present)

3.-. Journal of Physics A: Mathematical and Theoretical (1997 - present)

2.-. Applied Mathematics and Computations (2006 - present)

1.-. Journal of Computational and Applied Mathematics (2006 - present)

- Reviewer for Mathematical Reviews
- Reviewer for Zentralblatt MATH
- **Journals of Physics**:

  14.-. European Journal of Physics

  13.-. Results in Physics

  12.-. Modern Physics Letters

  11.-. Journal of Physics Communications (2018 - present)

  10.-. Astrophysics and Space Science (2018 - present)

  9.-. Chinese Physics B (CPB) (2011 - present)

  8.-. Chinese Physics Letters (CPL) (2011 - present)

  7.-. International Journal of Theoretical Physics (2010 - present)

  6.-. Canadian Journal of Physics (2010 - present)

  5.-. Physica Scripta (2006 - present)

  4.-. Journal of Physics: Condensed Matter (2000 - present)

  3.-. Journal of Optics A: Pure and Applied Optics (1999 - present)

  2.-. Journal of Physics B: Atomic and Molecular Physics (1997 - present)

  1.-. Journal of Molecular Liquids (1995 - present).

5.3 Main books reviews and author:

14.-. *Proceedings of the Sixth and Seventh International Workshops on Contemporary Problems in Mathematical Physics, the Eighth International School, and the 2012 African Mathematical School* , editors: Jan Govaerts and M. Norbert Hounkonnou, (ICMPA - UNESCO Chair Publishing, Benin, (2014)).

13.-.(with S. T. Ali, G. A. Goldin, R. Kerner, K. B. Sinha, and A. Yoshioka) Lead Guest Editor of a Special Issue of Advances in Mathematical Physics, (2010) on *Nonlinear and Noncommutative Mathematics: New Developments and Applications in Quantum Physics.*

12.-. *Classical and Quantum Orthogonal Polynomials in One Variable*, Mourad E. H. Ismail, (Encyclopedia of Mathematics and its Applications 98, vol. 3. University Press, Cambridge (2009)). xviii+708 pages. Paperback, ISBN 978-0-521-14347-9.

11.-. *Numerical Analysis*, Mahouton Norbert Hounkonnou, (ICMPA Publishing, Cotonou, (2009)).

10.-. *Proceedings of the Fifth International Workshop on Contemporary Problems in Mathematical Physics*, editors: Jan Govaerts and M. Norbert Hounkonnou, (ICMPA - UNESCO Chair Publishing, Benin, (2008)).

9.-. *Proceedings of the Fourth International Workshop on Contemporary Problems in Mathematical Physics*, editors: Jan Govaerts, M. Norbert Hounkonnou, Alfred Z. Msezane, (World Scientific Publishing, Singapore, (2006)).

8.-. *Proceedings of the Third International Workshop on Contemporary Problems in Mathematical Physics*, editors: Jan Govaerts, M. Norbert Hounkonnou, Alfred Z. Msezane, (World Scientific Publishing, Singapore, (2004)).

7.-. *Exercises in Quantum Mechanics, A Self-Contained Book of Questions and Answers*, David Atkinson, Mahouton Norbert Hounkonnou and Porter Wear Johnson, (Rinton Press, Princeton, USA (2003)).

6.-. *Eléments de Physique Mathématique*, Mahouton Norbert Hounkonnou (URPT Lectures/IMSP, Benin, (2003)).

5.-. *Proceedings of the Second International Workshop on Contemporary Problems in Mathematical Physics*, editors: Jan Govaerts, M. Norbert Hounkonnou, Alfred Z. Msezane, (World Scientific Publishing, Singapore, (2002)).

4.-. *Quantum Mechanics, A Self-Contained Course*, David Atkinson and Mahouton Norbert Hounkonnou, (Rinton Press, Princeton, USA, (2001)).

3.-. *Proceedings of the First International Workshop on Contemporary Problems in Mathematical Physics*, editors: Jan Govaerts, M. Norbert Hounkonnou, William A. Lester, Jr., (World Scientific Publishing, Singapore, (2000)).

2.-. *Quantum Mechanics, An Introduction*

Theoretical Physics 1, W. Greiner, Berlin, Springer - Verlag, 347 pages, (1989) in "Revue

des questions Scientifiques", (1991).
1.-. *Quantum Mechanics, Symmetries*,
Theoretical Physics 2, W. Greiner and B. Muller, Berlin, Springer - Verlag, 368 pages, (1989) in "Revue des questions Scientifiques", (1991).

5.4 Service to the university community

-.Director of the Doctoral School in Mathematical Physics and Applications at the University of Abomey-Calavi, 2004-present
-.Chair of the Master of Science Degree and Doctoral Programmes in Mathematical Physics of the Material Universe at the University of Abomey-Calavi, 2004- present.
-.Co-chair of the Master of Science degree in Physical Oceanography and Applications, Common to both the University of Abomey-Calavi (Benin) and Toulouse University Paul Sabatier (France) (2009 - present)
-.Member of the University Council for Sciences (1994 - present).
-.Member of the Pedagogical Council of the Faculty of Sciences and Technology, University of Abomey-Calavi (2000 - present)
-.Member of University Sectorial Commitee for Sciences and Technology (1994 - present).
-.Chairman of the Theoretical Physics PhD program of the Institute of Mathematics and Physical Sciences (1994 - 2008).
-.Coordinator for Scientific Research and International Relations at the Institute of Mathematics and Physical Sciences (1995 - 2006).
-.Head of the Theoretical Physics Research Unit at the Institute of Mathematics and Physical Sciences (IMSP) (1993 - 2006).
-.Coordinator for Belgian Cooperation with the Institute of Mathematics and Physical Sciences (IMSP) (1993 - 2002).
-.Member of the University Committee for the Cooperation with Belgian Universities (1997 - 2013).
-.(Benin) University of Abomey-Calavi Coordinator for Cooperation with University Paris Sud XI (1994 - present).
-.(Benin) University of Abomey-Calavi Coordinator for Cooperation with University of Perpignan (1996 - present).

5.5 Organization of conferences

19.- The Nineth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 31 - November 6, 2015, Chair of organizing commitee

20.- The Tenth International School on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 24 - October 30, 2015, Chair of organizing commitee
19.- The Eigth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, November 2 - November 8, 2013, Chair of organizing commitee
18.- The Nineth International School on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 26 - November 1, 2013, Chair of organizing commitee
17.- The Eigth International School on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 20 - November 2, 2012, Chair of organizing commitee
16.- The Seventh International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 29 - November 4, 2011, Chair of organizing commitee
15.- The Seventh International School on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 22 - October 28, 2011, Chair of organizing commitee
14.- The Sixth International School on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 23 - November 5, 2010, Chair of organizing commitee
13.- The Sixth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 31 - November 6, 2009, Chair of organizing commitee
12.- The Fifth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 27 - November 2, 2007, Chair of organizing commitee
11.- The Fourth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 1 - November 4, 2005, Chair of organizing commitee
10.- The Third International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, November 1 - November 7, 2003, Chair of organizing commitee
9.- ICMPA Summer School on Operator Analysis in Hilbert Spaces, Cotonou, Benin, 01 - 06 September, 2003, Chair of organizing commitee
8.- URPT/IMSP Summer School on Operator Analysis in Hilbert Spaces, Porto-Novo, Benin, 05 - 10 August, 2002, Chair of organizing commitee
7.- The Second International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 28 - November 2, 2001, Chair of organizing commitee
6.- 8th International Seminar of Inter-African Group for Geometry, analysis and applications (GIRAGA VIII), Cotonou, Benin, December 2 - 9, 2000, co-organizer commitee.
5.- The First International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 31 - November 5, 1999, Chair of organizing commitee
4.- IMSP Annual Scientific day, July 11, 1997, Chief organizer.
3.- 6th International Seminar of Inter-African Group for Geometry, analysis and applications (GIRAGA VI), Lokossa, Benin, December 9 - 18, 1996, Chair of organizing commi-

tee.
2.- IMSP Annual Scientific day, July 11, 1996, Chief organizer.
1.- Mini International Seminar of Inter-African Group for Geometry, analysis and applications (Mini GIRAGA) on Dirac Operators, Cotonou, Benin, May, 1994, co-organizer.

6 Professional Awards and Honors

.- Organizer of the forthcoming International Colloquium on Group Theoretical Methods in Physics (Group 33/35) to be held for the first time in Africa (Benin) in 2024
.- Member elected representative for Africa of the International Mathematical Union Commission for developing countries (IMU CDC) (2023 - 2026)
.- Doctor Honoris Causa, University III-Paul Sabatier, Toulouse, France, (21 June 2022)
.- Associate member of the Académie Hassan II des Sciences et Techniques du Maroc, (2022 - present)
.- International panel member for the evaluation of the African Institute of Mathematical Sciences (AIMS) (23 February 2022 - 13 May 2022)
.- Honorary Foreign Associate of Academy of Science of South Africa (ASSaf) (2021 - present)
.- InterAcademy Partnership regional network board member (2019-present)
.- Member of the Global Council (GC) of InterAcademy Partnership Science Education Programme (IAP SEP) (2019-present).
.- President of the Network of African Science Academies (NASAC) (2019-present).
.- Member of the Scientific Committee of the International Centre for Advanced Training and Research in Physics (CIFRA, Magurele-Bucharest, Romania) (2019 - present).
.- Member of the Scientific Council of the Centre International de Mathmatiques Pures et Appliques (CIMPA)
.- Regular Member of Society for Industrial and Applied Mathematics (SIAM), (2018 - present).
.- Member of London Mathematical Society (LMS), (2018 - present).
.- International Conference with a Contributed volume *Mathematical Structures and Applications*, In honor of Mahouton Norbert Hounkonnou, Editors: Toka Diagana and Bourama Toni (2018)©Springer.
.- Member of the international panel for evaluating the performance of the Centre of Excellence for Mathematical and Statistical Sciences (MaSS CoE), University of the Witwatersrand, South Africa, from 18 to 20 September 2018, covering the 5-year period from 1 April 2013 to 30 December 2017. The goal was to enhance the pursuit of research excellence and networking while actively increasing capacity development by exploiting

the competitive advantage vested in outstanding researchers.
.- Member of Education Relief Foundation's (ERF) Consultative Expert Working Group (CEWG), Geneva, Switzerland, (2017-present).
.- 2016 C. N. R. Rao Prize for Scientific Research received for *incisive work on noncommutative and nonlinear mathematics and contributions to world-class mathematics education* on 14 November 2016, on the occasion of The World Academy of Sciences (TWAS) for the advancement of science in developing countries, 27th General Meeting in Kigali, Rwanda.
.- Co-chair of the Network of African, European and Mediterranean Academies of Sciences for Science Education (AEMASE), (2015 - present).
.- 2015 Tokyo University of Science President Award, April 27th, 2015.
.- Chair of African Academy of Sciences Commission on Pan-African Sciences Olympiad (2014 - present).
.- Chair of African Academy of Sciences Membership Advisory Committee (MAC) on Mathematical Sciences (2013 - present).
.- President of Benin National Academy of Sciences, Arts and Letters (2015-2020).
.- NANUM 2014 Award Committee Member of the International Congress of Mathematicians (ICM 2014) as Reviewer for Region Africa.
.- Founder Member of Benin National Academy of Sciences, Letters and Arts.
.- Member of Comité de Réflexion Stratégique sur les Systèmes d'Information (CORSSI) de l'Institut de Recherche pour le Développement (IRD, France) (2011-present).
.- Member of Comité d'Orientation de l'Agence Inter-Etablissements de Recherche pour le Développement (AIRD, France) (2011 - 2013).
.- External Examiner for 2010 – present Academic Year in the School of Natural Sciences, University of Zambia.
.- Chair of African Academy of Sciences Membership Advisory Committee on Mathematical Sciences, Informatics, Physics and Astronomy (2012-2013).
.- Member of the editorial board of Advances in Mathematical Physics.
.-Associate Editor of Geometry, Integrability and Quantization.
.- Associate Editor of Afrika Matematica.
.- Associate Editor of Communications in Mathematical Analysis.
.- Associate Editor of African Diaspora Journal of Mathematics.
.- Member of the Network STAFAV (Statistiques pour l'Afrique Francophone et Applications au Vivant).
.- Member of TWAS Membership Advisory Committee (MAC) in Physics (2009 - present).
.- Knight of the Benin National Order (Chevalier de l'Ordre National du Bénin), March 6, 2009.
.- TWAS Research Professor, University of Zambia, Lusaka, Zambia, (2007 - present).

.- Member of the Advisory Commitee for the Workshop on Geometry Methods in Physics, Bialowieża, Poland (2002 - present).
.- Member of African Academy of Sciences (AAS), (2005 - present).
.- Member of The World Academy of Sciences (TWAS) for the advancement of science in developing countries (ex Academy of Sciences for Developing World (TWAS)), (2004 - present).
.- Member of UNESCO Scientific Board for International Basic Sciences Programme (IBSP), (2004 - 2007).
.- Member of International Association of Mathematical Physics, (2004 - present).
.- Member of American Mathematical Society (AMS), (2004 - present).
.- Member of UNESCO Ad-Hoc Committee of Experts for International Basic Sciences Programme (IBSP), (2003- 2004).
.- President and Holder of the International Chair in Mathematical Physics and Applications (ICMPA) issued from the Second International Workshop on Contemporary Problems in Mathematical Physics (COPROMAPH2), Cotonou, Benin, October 28 - November 2, 2001.
.- Member of American Physical Society (APS), (1998 - 2002).
.- Prize of Third World Academy of Sciences (TWAS), 1996.
.- Member of New York Academy of Sciences, (1994 - present).
.- Free University of Brussels Fellowship, 1993.
.- Solvay International Institute of Physics and Chemistry Fellowship, January, February and March, 1993.
.- van Buren University Foundation (Belgium) Fellowship, 1992.
.- 6th International Seminar of Inter-African Group for Geometry, analysis and applications (GIRAGA VI), Lokossa, Benin, December 9 - 18, 1996, Visiting Lecturer.
.- Belgian National Science Foundation (FNRS), Campus de la Plaine-Chaville I, Avenue Maistriau 15, 7000 mons, May 6, 1992, Visiting Lecturer.
.- Marquis Who's Who in the World.

7 Main Recent Invited Addresses and Lecture Series

81. Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (Legos), Université Toulouse III Paul Sabatier, May 24th, 2019, talk given at the **Africa Day in Legos (Journée Africaine au Legos)** on *Travelling wave and soliton solutions of the Kawahara equation.*
80. Fundamental Mathematics Research Group, Department of Mathematics and Computer Science, University of Antwerp, Belgium, April 2019, Lectures given to M. Sc.

degree students on *Integrable Hamiltonian Systems.*

79. Fundamental Mathematics Research Group, Department of Mathematics and Computer Science, University of Antwerp, Belgium, April 24th, 2019, Colloquium on *Generalized deformed quantum differential calculus and integration.*

78. Fundamental Mathematics Research Group, Department of Mathematics and Computer Science, University of Antwerp, Belgium, April 24th, 2019, talk given on *Quasi-bi-Hamiltonian structrures of the Kepler problem in a deformed phase space.*

77. Seminar, Maths Lab., University of Zambia, Lusaka, Zambia, December 7th, 2018, *Zinbiel algebras and bialgebras: main properties and related algebraic structures.*

76. The 32nd International Colloquium on Group Theoretical Methods in Physics (Group32), Prague, July 09-13, 2018, *Zinbiel algebras and bialgebras: main properties and related algebraic structures.*

75. XXXVII Workshop on Geometric Methods in Physics, Bialowieza, Poland, July 1st - July 7th, 2018, *Hamiltonian dynamics of the Kepler problem in a deformed phase space.*

74. Centre of Excellence for Mathematical and Statistical Sciences, University of the Witwatersrand, South Africa, September 8th, 2017, *On a generalization of quantum algebras: coherent states maps, special functions and differential calculus.*

73. School of Mathematics, University of the Witwatersrand, Johannesburg, South Africa September 7th, 2017, *Modular structures and Hilbert-Schmidt operators in noncommutative quantum mechanics.*

72. XXXVI Workshop on Geometric Methods in Physics, Bialowieza, Poland, July 2nd - July 8th, 2017, *Recursion operator in a noncommutative Minkowski phase space.*

71. XXXV Workshop on Geometric Methods in Physics, Bialowieza, Poland, July 4th - July 9th, 2016, *On construction of the recursion operator in the Minkowski metric using a modified Poisson bracket.*

70. Southern Africa Mathematical Sciences Association (SAMSA) 2015 Conference in Windhoek, Namibia, November – November 27, 2015, key note speaker on *Generalization of Virasoro algebra : left-symmetry, geometry and related nonlinear systems.*

69. XXXIII Workshop on Geometric Methods in Physics, Bialowieza, Poland, June 28 - July 4, 2015, *Center-symmetric algebras and bialgebras: relevant properties and consequences.*

68. 2015 Tokyo University of Science (TUS) President Award talk, Tokyo University of Science, Tokyo, Japan, April 27th, 2015: *Generalized Virasoro algebra: left-symmetry and related algebraic and hydrodynamic properties.*

67. Tokyo University of Science, Tokyo, Japan, April – May 2015, Lectures on *Left symmetry in Physics and Geometry: Definition and algebraic consequences.*

66. Geometry and Dynamics Seminar, Chair of Geometric Analysis, EPFL, Lausanne,

November 26, 2014, *Generalized Virasoro algebra and left symmetry in geometry and physics.*

65. Centre de Recherches Mathématiques (CRM, Montreal, Canada) - Instituto de Ciencias Matematicas (ICMAT, Madrid, Spain) Workshop on Exceptional Orthogonal Polynomials and Exact Solutions in Mathematical Physics, Segovia, Spain, September 7 - September 12, 2014, *Transformations of degenerate hypergeometric equations into degenerate Heun equations.*

64. The 30th International Colloquium on Group Theoretical Methods in Physics (Group30), Ghent, Belgium, July 14 - July 18, 2014, *On some differential transformations of hypergeometric equations.*

63. University Paul Sabatier Toulouse (France), July 7, 2014, *Some exact solutions of a nonlinear Boussinesq system of equations.*

62. XXXII Workshop on Geometric Methods in Physics, Bialowieza, Poland, June 29 - July 5, 2014, *Supersymmetric vector coherent states for systems with Zeeman coupling and spin-orbit interactions.*

61. Hamiltonian Dynamics Seminar, Chair of Geometric Analysis, EPFL, Lausanne, September 25, 2013, *On a formal* 3*-ary star product for deforming a Poisson algebra.*

60. XXXII Workshop on Geometric Methods in Physics, Bialowieza, Poland, June 30 - July 7, 2013, *Npoints star product: construction and integral representation.*

59. XXIX International Colloquium on Group-Theoretical Methods in Physics, Chern Institute of Mathematics, Tianjin, China, 20 26, 2012, *On generalized oscillator algebras and their associated coherent states.*

58. XXXI Workshop on Geometric Methods in Physics Bialowie a, Poland, June 24 - 30, 2012, $\Theta(x,p)-$*deformation quantization of harmonic oscillator on a* $2D-$*phase space*

57.-. Pan African University Stakeholder Curriculum Validation Workshop, Addis Ababa, November 14 - November 18, 2011.

56. TWAS Research Professor, University of Zambia, Lusaka, September 08 - October 04t, 2011, *Algebraic Theory of Differential Equations.*

55. XXX Workshop on Geometric Methods in Physics, Bialowieza, Poland, June 25 - July 2, 2011, *Deformation quantization of harmonic oscillator in a general noncommutative phase space: Spectrum in relevant representations.*

54. XXIX Workshop on Geometric Methods in Physics, Bialowieza, Poland, June 27 - July 3, 2010, *Conservation laws for under determined systems of differential equations.*

53. XXVIII Workshop on Geometric Methods in Physics, Bialowieza, Poland, June 28 - July 5, 2009, *An algebraic method of factorization of ordinary differential operators.*

52. XXVII Workshop on Geometric Methods in Physics, Bialowieza, Poland, June 28 - July 5, 2008, *Noncommutative Complex Grosse-Wulkenhaar Model.*

51. TWAS Research Professor, University of Zambia, Lusaka, April 04 - May 1st, 2008 *Group Theory and Representations.*

50. XXVI Workshop on Geometric Methods in Physics, Bialowieza, Poland, July 1- July 7, 2007, *Noncommutative Noether Theorem.*

49. Séminaire de Physique Mathématique, Université Paris Sud XI, April 21, 2007, *Improved Energy Momentum Tensors in Noncommutative Field Theory.*

48. The Fourth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 1 - November 4, 2005, *Laguerre - Freud Equations for the Recurrence Coefficients of Some Discrete Semi-Classical Orthogonal Polynomials of Class Two* (with C. Hounga and A. Ronveaux).

47. The Fourth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 1 - November 4, 2005, *Basic Set of Polynomials: General Overview* (with A. Anjorin).

46. The Fourth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 1 - November 4, 2005, *The Potential Group Method for Sturm - Liouville Equations* (with K. Sodoga and G. Debiais).

45. The Fourth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 1 - November 4, 2005, *Analytical Solutions of a Generalized Nonlinear Reaction - Diffusion Equation* (with M. K. Mahaman).

44. The Fourth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 1 - November 4, 2005, *New Approach to the Characterization of the Atmosphere by Determination of Original Analytical Relations Representing a Backscattered Signal LIDAR* (with G. Debiais and F. K. Guedje).

43. The Fourth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 1 - November 4, 2005, *Bosonization of the Schwinger Model by a Noncommutative Chiral Boson* (with J. Ben Geloun and J. Govaerts).

42. The Fourth International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 1 - November 4, 2005, *Nonabelian Global Symmetries Realisation in Two Dimensional N Flavour Massless Schwinger Model* (with L. Gouba and J. Govaerts).

41. XXIV Workshop on Geometric Methods in Physics, Bialowieza, Poland, 25 June - 2 July, 2005, *2-Dimensional Noncommutative Field Theory on the Light Cone.*

40. Séminaire du Laboratoire de Physique Mathématique, Centre de Recherches Mathématiques (CRM), Université de Montréal, May 11th, 2004, *Recurrence Coefficients for the Generalized Charlier Semi-Classical Orthogonal Polynomials.*

39. Mathematical Physics Seminar, Center for Mathematical Sciences Research, (Rutgers, The State University of New Jersey, USA), April 8th, 2004, *New Families of Orthogonal*

Polynomials.

38. The Third International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, November 1 - November 7, 2003, *Fermionisation of a Two-Dimensional Free Massless Complex Scalar Field* (with L. Gouba, G. Y. H. Avossevou and J. Govaerts).

37. The Third International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, November 1 - November 7, 2003, *Self-Adjoint Extensions of the Dirac Hamiltonian With a δ-Sphere Interaction* (with G. Y. H. Avossevou and J. Govaerts).

36. The Third International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, November 1 - November 7, 2003, *On Generalized Continuous D Semi-Classical Orthogonal Polynomials of Class One* (with E. Azatassou).

35. The Third International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, November 1 - November 7, 2003, *Nonlinear Recurrence Relations for Modified q-Discrete Hermite Orthogonal Polynomials* (with C. Hounga and A. Ronveaux).

34. The Third International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, November 1 - November 7, 2003, *Optical Parameter Determination of the Atmosphere From a LIDAR Signal by Hilbert Transforms. Attempt at Aerosol Characterization* (with G. Debiais).

33. XXI Workshop on Geometric Methods in Physics, Recent Developments in Quantization, Bialowieza, Poland, 29 June - 5 July, 2003, *Supercoherent states for a model of Jaynes and Cummings in the strong coupling limit.*

32. EPS General Meeting, Trends in Physics, Budapest, Hungary, 26 - 30 August, 2002, *Physics for Development in Sub-Saharan African Countries.*

31. URPT/IMSP Summer School on Operator Analysis in Hilbert Spaces, Porto-Novo, Benin, 05 - 10 August, 2002, *Differential Operators in Mathematical Physics.*

30. Group24, XXIV International Colloquium on Group Theoretical Methods in Physics, Paris, 1 July 15 - 20, 2002, *Spectral Properties of Landau Operator with $\delta-$ cylinder interactions.*

29. Satellite Symposium to G24 - Groupe De Contact FNRS, Coherent States, Wavelets And Applications, Université catholique de Louvain, Belgium, July 10 - 12, 2002.

28. XXI Workshop on Geometric Methods in Physics, Recent Developments in Quantization, Bialowieza, Poland, 30 June - 06 July, 2002, *von Neumann Quantization of Aharonov-Bohm operator with δ interaction: scattering theory, spectral and resonance properties.*

27. The Second International Workshop on Contemporary Problems in Mathematical

Physics, Cotonou, Benin, October 28 - November 2, 2001, *The Transformation of Polynomial Eigenfunctions of Linear Second-Order q-Difference Operators: A Special Case of q-Jacobi Polynomials.*

26. The Second International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 28 - November 2, 2001, *On Generalized Continuous D Semi-Classical Hermite and Chebychev Orthogonal Polynomials of Class One* (with E. Azatassou).

25. The Second International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 28 - November 2, 2001, *On a Generalization of the Method by Barbaroux et al. for the Improvement on the Rate of decay of an Operator Resolvent* (with G. Honnouvo).

24. The First International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 31 - November 5, 1999, *Sturmian Approach in Multiphoton Ionisations* (with H. Margad, L. Mutuba and A. Makhoute).

23. The First International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 31 - November 5, 1999, *Laguerre-Freud Equations For Semi-classical Operators* (with E. Azatassou and A. Ronveaux).

22. The First International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 31 - November 5, 1999, *Analytically Solvable Models of Relativistic δ'-Interactions With First Type Boundary Conditions* (with G. Y. H. Avossevou).

21. The First International Workshop on Contemporary Problems in Mathematical Physics, Cotonou, Benin, October 31 - November 5, 1999, *The von Neumann Theory of Self-Adjoint Extensions of Symmetric Linear Operators: Applications to Dirac and Dirac-Coulomb Hamiltonians.*

20. Séminaire de Physique Mathématique sur *"Polynômes Orthogonaux Semi-Classiques à Poids Discrets: Cas des Charlier Généralisés"*, Centre de Physique Théorique, CNRS - Luminy, 13288 Marseille Cedex 9, France, 14 Oct. 1998.

19. VIIIèmes Journées Scientifiques de l'Université du Bénin, Lomé (Togo), 11-15 Mai 1998, *"Discrete Semi-Classical Orthogonal Polynomials: Generalized Charlier"*.

18. VIIIèmes Journées Scientifiques de l'Université du Bénin, Lomé (Togo), 11-15 Mai 1998, *"Laguerre-Freud Equations For the Semi-Classical Orthogonal Polynomials on Conics"*, (with S.E. Azatassou et A. Ronveaux).

17. VIIIèmes Journées Scientifiques de l'Université du Bénin, Lomé (Togo), 11-15 Mai 1998, *"Théorie du Neutrino en Présence de Contraintes Extérieures"*, (with J.E.B. Mendy).

16. VIIIèmes Journées Scientifiques de l'Université du Bénin, Lomé (Togo), 11-15 Mai 1998, *"Théorie de la Diffusion par des potentiels δ-Sphériques de Deuxième Espèce: Cas*

Relativiste", (with G. Avossèvou).

15. VIIIèmes Journées Scientifiques de l'Université du Bénin, Lomé (Togo), 11-15 Mai 1998, *"Théorie de la Diffusion par des potentiels δ-Sphériques de Première Espèce: Cas Relativiste"*, (with A. Vyabandi).

14. VIIIèmes Journées Scientifiques de l'Université du Bénin, Lomé (Togo), 11-15 Mai 1998, *"Paramétrisation Hypersphérique du Problème à n Corps en Mécanique Quantique Non - Relativiste"*, (with E. Baloitcha).

13. 6th International Seminar of Inter-African Group for Geometry, analysis and applications (GIRAGA VI), Lokossa, Benin, December 9 - 18, 1996, Visiting Lecturer *"On Coherent States and Mathematical Wavelets."*

12. Seminar on Resolution Methods for Partial Differential Equations With applications in Geometry and Physics, IMSP, Benin, January 8, 1996 *"Contribution à l'Approximation Semi-Classique dans le Calcul des Intégrales Radiales Dipolaires"*, (with G. Lagmago, M.K. N'Jock).

11. Seminar on Resolution Methods for Partial Differential Equations With applications in Geometry and Physics, IMSP, Benin, January 8, 1996 *"On the Dielectric Molecular Relaxation Master Equation in a Thermalized Medium"*, (with J.T. Titantah and A. Ronveaux).

10. Seminar on Resolution Methods for Partial Differential Equations With applications in Geometry and Physics, IMSP, Benin, January 8, 1996 *"On the Heun Form Solutions of the Schrodinger Equation"*, (with M. Mazita and A. Ronveaux).

9. Journée de Simulation en Physique Statistique, E.S.P.C., Paris (France), organized by G. Ciccotti, D. Levesque, M. Meyer, M. Mareschal and V. Pontikis in the framework of the XIIième Rencontre Internationale de Physique Statistique de Paris (France), *"Comportement Rhéologique d'un Fluide de Molécules Anisotropes dans Divers Ecoulements: Aspects Linéaires et Nonlinéaires"*, January 29, 1992.

8. Cours de Troisième Cycle Interuniversitaire: Chimie Physique Moléculaire - Questions Spéciales, Belgian National Science Foundation (FNRS), Mons - Hainaut *"Molecular Dynamics Simulations of Equilibrium and Non-Equilibrium Phenomena"*, May 6, 1992.

7. Workshop on "New Directions in Polymer Simulations", Centre Européen de Calcul Atomique Moléculaire (CECAM), Paris (France), *"Rheology of Rigid Rods in Couette and Elongational Flows"*, July 20 - 31, 1992.

6. Catholic University of Louvain (Belgium), *"Aspects Microscopiques et Macroscopiques des Fluides Polyatomiques Soumis á des Ecoulements Homogènes et Stationnaires"*, July, 1991.

5. NATO ASI (Advanced Study Institute) on "Computer Simulations in Material Sciences: Interatomic Potentials, Techniques and Applications" organized by M. Meyer and

V. Pontikis, Aussois (France), *"Viscosity and Rheological Properties of Mono- and Diatomic Liquids by Molecular Dynamics"*, March 24 - April 4, 1991.
4. University of Liège - sart Tilman, Belgium, Contact group "Atoms, Molecules and Radiation", Belgian National Science Foundation (FNRS), *"Molecular Electric Birefringence"*, October 31, 1990.
3. Catholic University of louvain, FYAM, belgium, *"Calcul du Taux d'Ionisation de l'Ion Multichargé Ar^{+8}"*, December, 1987.
2. National University of Benin, "Premières Journées de Sciences et Technologie", April 5 - April 11, 1984.
1. Kharkov, URSS, Scientific days of the kharkov Society of Sciences and Technology, *Controlability Problems in Dynamical Systems: Mathematical Aspects"*, 1983.

8 Main Research Areas

Mathematical physics, theoretical physics, noncommutative and nonlinear mathematics, integrable Hamiltonian systems, geometric methods in physics with special emphasis on the following keywords:

- Mathematical methods of quantum theory (MSC2010 classification: 81Qxx; 81Rxx; 81Sxx; 81Txx); quantization techniques; quantum algebras, representations, coherent states;
- Nonassociative rings, algebras, coalgebras and bialgebras and links to integrable systems (MSC2010 classification: 17Axx; 17Bxx; 16Txx);
- Classical and quantum hypergeometric functions (MSC2010 classification: 33Cxx and quantum analogs), quantum orthogonal polynomials and special functions;
- Operator theory;
- Theory of differential / difference equations: symmetry analysis, factorization, algebraic structures;
- Noncommutative field theories;
- N - body problems in:

  - Molecular physics: body fixed hyperspherical/polyspherical parametrization approach

  - Statistical mechanics of complex phenomena: classical and quantum formalisms;

- (Quasi-bi-)Hamiltonian systems (MSC2010 classification: 37K05, 37K10).

My works also deal with statistics applied to living, as well as mathematical methods in geosciences including physical oceanography.

9 List of main refereed research publications

(**See full list of publications in:**
www.researchgate.net/profile/Mahouton_Hounkonnou/)

181. (with M. J. Landalidji and M. Mitrović), *Hamiltonian dynamics of a spaceship in Alcubierre and Gödel metrics: Recursion operators and underlying master symmetries*, Theoretical and Mathematical Physics, volume **212**, pages 1001-1018 (2022)
180. (with F. Manfouo, T. V. Diffo, M. F. C. Fobasso, E. Balotcha, and A. J. Fotue), *Properties of acoustic polaron in free-standing slab*, Physica B **643**, 414172 (2022)
179. (with M. J. Landalidji and M. Mitrović), *Einstein field equation, recursion operators, Noether and master symmetries in conformable Poisson manifolds*, Universe 2022, **8**, 247 (2022); https://doi.org/10.3390/universe8040247
178. (with Mafoya Landry Dassoundo and Chengming Bai) *Anti-flexible bialgebras*, Journal of Algebra and Its Applications(2022) 2250212 (23 pages) (2022); https://doi.org / 10.1142 / S0219498822502127
177. (with Melanija Mitrović and Marian Alexandru Baroni), *Theory of Constructive Semigroups with Apartness - Foundations, Development and Practice*, Fundamenta Informaticae **184**(3): 233-271 (2021); https://doi.org/10.3233/FI-2021-2098
176. (with Remi C. Avohou, Joseph Ben Geloun), *Extending the Tutte and Bollobás-Riordan polynomials to rank 3 weakly coloured stranded graphs*, Combinatorics, Probability and Computing, 1-43 (2021); doi:10.1017/S096354832100050X
175. (with Isiaka Aremua and Komi Sodoga), *Density operator representation in multi-matrix vector coherent states: Landau problem in a harmonic potential background*, Reports on Mathematical Physics, Vol **88** (3), pp 327-350 (2021), DOI: 10.1016/s0034-4877(21)00084-7
174. (with M. J. Landalidji and M. Mitrović), *Noncommutative Kepler dynamics: symmetry groups and bi-Hamiltonian structures*, TMF, **207:3** (2021), 403423; Theoret. and Math. Phys., **207:3** (2021), 751769, https://doi.org/10.4213/tmf10017
173. (with F. C. Fobasso Mbognou, C. Kenfack-Sadem, A. J. Fotue, D. Akay, L. C. Fai), *Thermodynamics Properties and Optical Conductivity of Bipolaron in Graphene Nanoribbon Under Laser Irradiation*, Journal of Low Temperature Physics, (2021), https://doi.org/ 10.1007/$s10909-021-02573-z$.

172. (with C. Kenfack-Sadem, F. C. Fobasso Mbognou, A. J. Fotue, D. Akay, L. C. Fai), *Thermodynamic properties and optical absorption of polaron in monolayer graphene under laser field*, Journal of Low Temperature Physics, (2021), https://doi.org/10.1007/$s10909-021-02586-8$.

171. (with Isiaka Aremua, Ezinvi Baloïtcha and Komi Sodoga), *Density operator formulation for magnetic systems: physical and mathematical aspects*, J. Math. Phys. bf 62, 013503 (2021); https://doi.org/10.1063/5.0012588.

170. (with Melong, Fridolin), *R(p,q) Analogs of Discrete Distributions: General Formalism and Applications*, Journal of Stochastic Analysis: **Vol. 1** : No. 4 , Article 11 (2020), DOI: 10.31390/josa.1.4.11

169. (with Gbêvèwou Damien Houndedji), *2-hom-associative bialgebras and hom-left symmetric dialgebras*, Springer Nature Switzerland AG 2020 P. Kielanowski et al. (eds.), Geometric Methods in Physics XXX VIII, Trends in Mathematics,
https://doi.org/$10.1007/978-3-030-53305-2_7, 97-115$.

168. (with Fridolin Melong and Mitrović), *Generalized Witt, Witt n− algebras, Virasoro algebras and KdV equations induced from $\mathcal{R}(p,q)$− deformed quantum algebras*, arXiv:2008.04778v1 [math-ph], Reviews in Mathematical Physics, (2020),
https://doi.org/10.1142/S0129055X21500112.

167. (with Mafoya Landry Dassoundo), *q-generalized (anti-) flexible algebras and bialgebras*, SUT J. Math. **56**, No 2, 71–92 (2020).

166. (with Mahougnon Justin Landalidji), *Hamiltonian dynamics for the Kepler problem in a deformed phase space*, Trends in Mathematics, (2019) (in press).

165. (with A. J. Fotue, T. V. Diffo , E. Baloitcha, F. C. Fobasso Mbognou, G. T. Tedondje), *Spin-orbit interaction on the thermodynamics of three-dimensional impurity magnetopolaron under strong parabolic potential* , Eur. Phys. J. Plus (2020) 135-430; https://doi.org/10.1140/epjp/s13360-020-00441-5.

164. (with Emanonfi Elias NDolo, Dine Ousmane Samary, Baloitcha Ezinvi), *Noncommutative Dirac and Klein-Gordon oscillators in the background of cosmic string: Spectrum and dynamics* International Journal of Geometric Methods in Modern Physics, **17**, 05, 2050078 (2020), DOI: 10.1142/s0219887820500784: World Scientific

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10 Personal Items

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