CURRICULUM VITAE

I. Personal Data

(a)	Name:	Oluseyi Ezekiel Awe
(b)	Date of Birth:	7 March, 1970
(c)	Sex:	Male
(d)	Marital Status:	Married
(e)	Nationality:	Nigerian
(f)	Town and State of Origin:	Ilesa, Osun State
(g)	Contact Address:	Department of Physics, University of Ibadan, Ibadan, Nigeria
(h)	Phone Number:	08055359532/09095500654 08082439004(WhatsApp number)
(i)	Email Address:	oluseyi.awe@mail1.ui.edu.ng/ profoeawe2017@yahoo.com/ draweoe2004@yahoo.com
(j)	Present Post (with date):	Professor (1 October, 2017)
(k)	Area of Specialisation:	Condensed Matter Physics (formerly known as Solid State Physics)

II. University Education (with dates):

(a) University of Ibadan, Undergraduate	1992-1997
(b) University of Ibadan, Postgraduate	1998-1999
(c) University of Ibadan, Postgraduate	1999-2004

III. Academic Qualifications (with dates and granting bodies):

B.Sc. Physics, March, 1997.	University of Ibadan.
M.Sc. Physics, June 1999.	University of Ibadan.
Ph.D, October, 2004.	University of Ibadan.

IV. Professional Qualifications and Diplomas (with dates):

(a) Certificate in teaching large classes. 2003
(National Universities Commission).

(b) Certificate as National Trainer in Distance Learning. 2011
(British Council)

(c) Certificate of Attendance 2020
(Researcher Academy On Campus)

(d) Certificate of achievement for the successful completion of The 2020
Fundamentals of Digital Marketing certificate examination.
(Google Digital Skills for Africa)

(e) Certificate in Facilitating Online. 2020
(Centre for Higher Education Development Continuing Education,
University of Cape Town).

(f) Certificate of proficiency in online facilitation and the use of the 2022
learning management systems with a Distinction grade.
(Association of Commonwealth Universities & National Open University Nigeria)

V. Honours, Distinctions and Membership of Learned Societies:

- Member, Institute of Physics, UK.
- Member, Nigerian Institute of Physics.
- Member, Science Association of Nigeria.
- Associate Editor of Journal of Applied Science, Engineering and Technology.
- Reviewer to a number of international journals. These include 1) International Journal for Light and Electron Optics (Elsevier, UK), 2) Journal of Alloys and Compounds (Elsevier, UK), 3)Journal of Non-crystalline Solids (Elsevier, UK), 4)Journal of Molecular Structure (Elsevier, UK), 5)Vacuum (Elsevier, UK) and 6) International Journal of Modern Physics B

VI. Details of Teaching/Work Experience:

(a) Work Experience

i. Assistant Lecturer, Department of Physics,
University of Ibadan: 28 February, 2000- 30 September, 2002

ii. Lecturer II, Department of Physics,
University of Ibadan: 01 October, 2002- 30 September, 2005

iii. Lecturer I, Department of Physics,
University of Ibadan: 01 October, 2005- 30 September, 2008

iv. Senior Lecturer, Department of Physics,
University of Ibadan: 01 October, 2008- 30 September, 2013

v. Reader, Department of Physics,
University of Ibadan: 01 October, 2013-30 September, 2017

vi. Full Professor, Department of Physics,
University of Ibadan: 01 October, 2017-Date

(b) Teaching Experience at University of Ibadan

(i) Participated in teaching the following courses:

PHY 101 (Elementary Physics for Students of Agriculture, Forestry and Veterinary Medicine): 2000/2001

PHY102 (Introductory mechanics and properties of matter) 2021/22 - Date.

PHY112 (Basic Principles of Physics II-Electricity and Magnetism):2005 - 2015.

PHY 114 (Basic Principles Physics I-Mechanics and Properties of Matter):2000-2004.

PHY 201 (Classical Physics I): 2008/09.

PHY 304 (Principles of Quantum Physics I): 2016/17-2020/21

PHY 305 (Numerical computation in Physics): 2002-2005, 2016/17-Date.

PHY 306 (Introduction to Electronics): 2007-2009.

PHY 307 (Solid State Physics I): 2002-2006, 2013-2015.

PHY 314 (Semiconductor Devices): 2009-2012.

PHY 315 (Research Method II): 2018/19-Date

PHY 407 (Solid State Physics II): 2009-2015.

PHY 702 (Thermodynamics): 2009-2015, 2017/18-2018/19.

PHY 712 (Basic model concepts and manifest properties of solid):	2007-2015, 2016/17, 2017/18-Date.
PHY 715 (Semi-Conductor Physics):	2016/17, 2017/18-2018/19.
PHY 717 (Alloys, Surface and Interface Physics Theories of Binary and Ternary liquid alloys):	2013/14-Date
PHY 781 (Numerical and computational methods):	2001/2002, 2005-2009, 2016/17.

(ii) No. of B.Sc Research Projects Supervised to Date: 36

(iii) No. of M.Sc Research Projects Supervised to Date: 30

(iv) Ph. D Research Projects supervision already completed: 4

(v) Ph. D Research Projects supervision in Progress: 1

Details of Teaching/Work Experience (outside University of Ibadan):

1. External Examiner for B.Sc. Physics with Electronics Programme-Al-hikmah University, Ilorin, Kwara state, for three years (2021/2022, 2022/2023 and 2023/2024 academic sessions).

2. External Examiner for B.Sc.Industrial PhysicsProgramme-Covenant University,Canaan land, Ota, Ogun state (2018/19 and 2019/20 academic sessions).

3. Sabbatical leave: I participated in teaching the following courses at Obafemi Awolowo University, Ile-Ife, Osun State, during Sabbatical Leave:

   PHY 101 (General Physics I): 2015/2016 (Harmattan Semester).

   EPH 304 (Atomic Arrangements in Solids): 2014/15 (Rain Semester).

   PHY 305 (Thermodynamics): 2015/2016 (Harmattan Semester).

   PHY 308 (Experimental Physics IIIB): 2014/15 (Rain Semester).

   PHY 401(Mathematical Physics II):2015/16 (Harmattan Semester).

   PHY 407 (Independent Study And Project): 2014/15 (Rain Semester).

   PHY 422 (Selected Topics In Condensed Matter Physics): 2014/15 (Rain Semester).

PHY 604 (Electromagnetic theory II): 2014/15 (Rain Semester).

(c) Administrative Responsibilities:

- Departmental Examination officer:	2001 – 31 July, 2013
- Chief examiner for 100L:	01 May, 2006-19 July, 2006
- Member, Department of Physics Postgraduate committee:	2004-Date
- Sub-Dean (Physical Sciences) Faculty of Science:	01 August 2008-31 July, 2010
- Member, Faculty of Science Appointment and Promotion Committee:	2009/2010
-Course Supervisor for GES 104:	01 August, 2010-31 July, 2015
- Member, UI PHEA SAIDE ETI Project:	2010-2013
- Member, UI team at the 4th edition of Nigerian Universities Research and Development Fair (NURESDEF) held at UNN, Nsukka:	22-28 November, 2010
- Member, Faculty of Science Undergraduate Curriculum Review Committee:	2011-2014
- Member, Faculty of Science Board of Studies:	2012/2013
- Member, University of Ibadan Servicom Guild:	2013-July 31, 2019
- Chairman, Department of Physics Student Counselling Committee:	2014/15
- Member, Sub-committee of LOC for the 3rd International Conference on Scientific research in Nigeria	May 16-19, 2017.
- Member, Department of Physics Student Counselling Committee:	2016/17-Date
- Faculty of Science Representative in Quality Assurance committee:	June 1, 2017-2023

- Assistant Hall Warden of Mellanby Hall of Residence:	June 1, 2017-May 31, 2019
- President, Science Family Cooperative Investment and Credit Society, University of Ibadan:	July 11, 2017-Date
-Deputy Focal Person, SERVICOM, University of Ibadan:	August 1, 2019-April 30,2021
-Head, Department of Physics, University of Ibadan.	August 1, 2020-July 31, 2022
-Focal Officer University of Ibadan SERVICOM	May 1,2021-Date

VII. **Research**:

(a) Completed:

(i) Modelling of thermodynamic properties of binary, ternary and multicomponent liquid alloys.

(ii) Fabrication of solar cells.

(iii) A theoretical study of the dynamics of the Ionosphere.

(b) In Progress:

i. Metal nitrides of aluminum, gallium, scandium, and yttrium are class of nitrides semiconductor with interesting mechanical, electronic and optical properties. Their combinations with rare-earth metals in the form of dopants, open possibilities for material heterostructures for wide range of applications. Hence, we are studying the intrinsic defect and dopant interactions in rare-earth doped metal nitrides using both experimental and computational approaches.
We have computationally investigated the structural, electronic, optical, vibrational, mechanical and elastic properties of polymorphs of nitrides of aluminum, gallium, scandium and Yttrium. These form the foundation for the study of defect properties which is crucial to achieving the overall objective of the study. Also, we have synthesized doped nitrides samples but are still working on the determination of the lattice location and the concentration of dopants in the samples. From application point of view, the study has the potentials to discover new class of material suitable for applications in optoelectronics, quantum information processing and information storage as well as materials for renewable energy.

ii. The increasing use of ternary and multicomponent alloys systems in the electronic industries explains why we are interested in the study of thermodynamic properties of

ternary and multicomponent alloys. At present, preliminary calculations have been done on the concentration-concentration fluctuations in the long wavelength limit and short range order of some ternary alloys. The study is being extended to multicomponent systems. It is expected that at the end of this study, the results obtained will provide additional information on the structure of both ternary and multicomponent alloys and consequently shed more light on the relevance of these systems in the electronic industries, especially as possible substitutes for lead-free solders.

Projects, Dissertation and Thesis:

(i) Awe, O. E. (2004): Modelling thermodynamic properties of binary and ternary liquid alloys (Ph.D Thesis, University of Ibadan).

(ii) Awe, O. E. (1999): Investigation of Cut-off Radius on The Static and Dynamic Properties of Lennard-Jones Fluid By Method of Molecular Dynamics (M.Sc. Project, University of Ibadan).

VIII. Publications:

(a) Books Already Published: Nil

(b) Chapters in Books

Already Published:

1. Farai, I.P. and **Awe, O. E.** (2012). Physics, Space Exploration and Exploitation. In Ekundayo, O. and Awe, O. E. (Eds.) *Science, Industry and Mankind*. Ibadan: General Studies Programme Unit. 52-69 pp. ISBN 978-978-365-84-8-4. (Nigeria)

2 **Awe, O. E.** (2013). Electric Field and Electric Field Intensity. In Farai, I.P. and Oni, O.M. (Eds.) *Fundamentals of Electricity and Magnetism*. Ibadan: Ibadan University Press. 41-47 pp. ISBN 978-978-8456-09-4. (Nigeria)

3. **Awe, O. E.** (2013). Simple Circuit Laws. In Farai, I.P. and Oni, O.M. (Eds.) *Fundamentals of Electricity and Magnetism*. Ibadan: Ibadan University Press. 87-97pp. ISBN 978-978-8456-09-4. (Nigeria)

Accepted for publication

4. **Awe, O. E.** (2003/4). Physics, Space Exploration and Exploitation. In (Eds. Not yet known) *Man, Science, Environment and Sustainable Development*: A GST 203 Textbook for undergraduate students in Christland University, Abeokuta. (Nigeria)

(c) Articles that have Already Appeared in Refereed Conference Proceedings:

5. Olopade, M.A., **Awe, O.E**., Awobode, A.M., Oberafo, A. and Zebase Kana, M.G. (2012). Fabrication of Cu_2ZnSnS_4 Thin Film Solar Cells by the Spin Coating technique. In Burhanuddin, Y.M. and Ibrahim, A. (Eds.) *Proceedings of 2012 10th IEEE International conference on Semiconductor Electronics (ICSE), Kuala Lumpur, Malaysia.* 678-681 pp. (Malaysia)

(d) Patents and Copyrights: Nil

(e) Articles that have Already Appeared in Learned journals:

6. Akinlade, O., Hussain, L.A. and **Awe, O. E.** (2003). Thermodynamics of liquid Al-In, Ag-In and In-Sb alloys from a four atom cluster model. *Zeitschrift fur. Metallkunde* Vol. 94. No. 12: 1276-1279. (Germany)

7. **Awe**, **O.E.**., Akinlade, O. and Hussain, L.A. (2003). Thermodynamic properties of liquid Te-Ga and Te-Tl alloys. *Journal of Alloys and Compounds* Vol. 316: 227-233. (Netherlands)

8. **Awe**, **O.E.,** Akinlade, O. and Hussain, L.A. (2005). Conditional probabilities and thermodynamic properties of liquid Ag-Au,Cd-Pb,and Ga-Zn alloys. *Journal of Alloys and Compounds* Vol. 387: 256- 259. (Netherlands)

9. **Awe**, **O.E.,** Akinlade, O. and Hussain, L. A. (2005). Thermodynamic investigations of Bi-Cd, In-Pb and Ni-Pd liquid alloys. *Zeitschrift fur. Metallkunde* Vol. 96. No. 1: 89-93. (Germany)

10. **Awe**, **O.E.,** Akinlade, O. and Hussain, L. A. (2006). Bulk and surface properties of liquid Al-Mg, Au-Sn, and Mg-Tl compound forming alloys. *Surface Science* Vol. 600: 2122-2128. (Netherlands)

11. Akinlade, O. and **Awe, O.E.**, (2006). Bulk and surface properties of liquid Ga-Tl and Zn-Cd. *International Journal of Materials Research (formerly Zeitschrift fur Metallkunde)* Vol. 97. No**.** 4: 377-381. (Germany)

12. **Awe**, **O.E.**, Akinlade, O. and Hussain, L.A. (2006). A Quasi-lattice Theory for compound forming ternary liquid alloys. *International Journal of Modern Physics B* 20. Vol. 23: 3319-3340. (Singapore)

13. Odusote, Y.A., Hussain, L.A. and **Awe, O.E.** (2007)**.** Bulk and dynamic properties in Al-Zn and Bi-In liquid alloys using a theoretical model. *Journal of Non-Crystalline Solids* Vol. 353. Issues 11-12: 1167-1171. (US)

14. Awe, **O.E**., Odusote, Y.A., Akinlade, O. and Hussain, L.A. (2008). Thermodynamic properties of some gallium-based Binary alloys. *Journal of Physica B* Vol. 403. Issue 17: 2629-2633. (Netherlands)

15. **Awe**, **O.E**., Odusote, Y.A., Akinlade, O. and Hussain, L.A. (2008). Energetics of Mixing in Bi-Pb and Sb-Sn Liquid Alloys. *Journal of Physica B* Vol. 403. Issue 17: 2732-2739. (Netherlands)

16. **Awe, O. E. (**2009). Size difference effects on the bulk and surface properties of Bi-Zn, Cu-Pb, K-Pb and K-Tl liquid alloys. *International Journal of Materials Research (formerly Zeitschrift fur Metallkunde)* Vol. 11: 1593-1601. (Germany)

17. **Awe, O.E**., Akinwale, T.I., Imeh, J. and Otu, J. (2010). Calculation of experimental concentration-concentration fluctuations of liquid binary alloys using experimental free energy of mixing and experimental activities. *Physics and Chemistry of Liquids* Vol. 48. Issue 2: 243- 256. (Germany)

18. **Awe, O.E.** (2010). Size mismatch effects on the atomic transport properties of Copper and Potassium-based liquid alloys. *Journal of Physica B* Vol. 405**.** Issue 11: 2545-2550. (Netherlands)

19. **Awe**, **O.E.,** Odusote, Y.A., Akinlade, O. and Hussain, L.A. (2011). Temperature dependence of thermodynamic properties of Si-Ti binary liquid alloys. *Thermochimica Acta* Vol. 519: 1- 5. (US)

20. **Awe, O.E.** and Alvan, W. (2010). Theoretical Determination of Dynamic properties of Bi-Sn liquid alloys. *Journal of Science Research* Vol. 9**:** 86-89. (Nigeria)

21. **Awe**, **O.E**. , Adegoke, J.A. and Eniafe, B.S. (2011). The impact of the variability of ionospheric phase refractive index on radio signals instability. *International Journal of the Physical Sciences* Vol. 6. Issue 30: 6801-6819. (Kenya)

22. **Awe, O.E.** and Onifade, A. (2012). Effects of surface coordination of atoms on the surface properties of some liquid binary alloys. *Physics and Chemistry of liquids* Vol. 50. Issue 5: 579-595. (Germany)

23. **Awe, O.E.** and Olawole, O. (2012). Correlation between bulk and surface properties in Cd-X (= Hg, Mg) liquid alloys. *Journal of Non-crystalline solids* Vol. 358: 1491-1496. (US)

24. Olopade, M.A., **Awe**, **O.E**., Awobode, A.M. and Alu, N. (2012). Characterization of SnO2: F Films Deposited by Atmospheric Pressure Chemical Vapour Deposition for Optimum Performance Solar Cells. *The African Review of Physics* (2012) Vol. **7:** 177-181. (Italy)

25. Olopade, M.A., Awobode, A.M., **Awe.O.E**. and Imalerio, T.I. (2013). Structural and Optical Characteristics of Sol Gel Spin-coated Nanocrystalline CdS Thin Film. *International Journal of Research and Reviews in Applied Sciences* Vol.15. Issue 1: 120-124. (Pakistan)

26. **Awe**, **O. E**. and Oshakuade, O.M. (2014). Theoretical prediction of thermodynamic activities of all components in the Bi-Sb-Sn ternary lead-free solder system and Pb-Bi-Sb-Sn quaternary system. *Thermochimica Acta* Vol. 589: 47-55. (US)

27. **Awe**, **O. E**. and Oshakuade, O.M. (2016). Computation of Infinite Dilute Activity Coefficients of Binary Liquid Alloys using Complex Formation Model. *Journal of Physica B* Vol. 487: 13-17. (Netherlands)

28. **Awe, O.E.** (2016). The role of size effect on the bulk properties of copper-tin liquid alloys. *Journal of Science Research* Vol. 15. 109-118. (Nigeria)

29. **Awe**, **O. E**., and Oshakuade, O.M. (2017). Theoretical prediction of thermodynamic activities of liquid Au-Sn-X (X= Bi,Sb,Zn) solder systems. *Journal of Physica B* Vol. 507: 84-94. (Netherlands)

30. **Awe, O.E**. and Azeez, A. A (2017). Temperature dependence of the bulk and surface properties of liquid Zn-Cd alloys. *Applied Physics A* Vol. 123 Issue 5: 1-10. (Germany)

31. Dada, M.O.,Jayeoba, B., Awojoyogbe, B.O., Uno, U.E., and A**we, O.E**. (2017).

Mathematical development and computational analysis of Harmonic Phase-Magnetic Resonance Imaging (HARP-MRI) based on bloch Nuclear Magnetic Resonance (NMR) diffusion model for myocardial motion. *J.Med Syst.* Vol. 41 Issue 10: 1-20. (US)

32. **Awe, O.E**. (2019). Thermodynamic investigation of thermophysical properties of thallium-based liquid alloys. *Physics and Chemistry of liquids.* Vol.57 Issue 3:296-310 (Germany)

33. T. T. Ogunseye, O.I.Popoola and O.E.Awe (2021). Seismically Determined Acoustic Gruneisen Parameter in the Earth's core. *IOP Conf. Ser.: Earth Environ. Sci*. 655 doi:10.1088/1755-1315/655/1/012089

34. S.O.Ogundeji,**O.E.Awe**,C.A.Madu and B.C.Anusionwu (2021). Fe – Co and Fe – Mn Liquid Alloys: A Study of Bulk and Transport Properties *Journal of Molecular Liquids* Vol. 328 : 115393. (US)

35. Oshakuade, Olugbenga Morayo and Awe, Oluseyi Ezekiel. "Determination of bulk and surface properties of liquid Bi-Sn alloys using an improved quasi-lattice theory" *Physical Sciences Reviews, https://doi.org/10.1515/psr-2020-0095*

36. O.M.Oshakuade and **O.E. Awe** (2022). Computation of infinite dilute activity coefficients for Ga-X (X= In, Tl) and thermodynamic activities of all components in liquid Ga-In-Tl alloys. *Physics and Chemistry of liquids.* Vol.60 Issue 3:427-435 (Germany)

37. Iheduru C., Eleruja MA,Olofinjana B, Awe OE, and Buba ADA (2023).Comparison of the performances between the gray and non-gray media approaches of thermal transport in silicon-tin. Ann Math Phys 6(1):089-092. (US)

(f) Technical Reports and Monographs: Nil

IX. Major Conferences/Webinars/Schools (in the last 5 years):

1. Mini African school of Electronic Structure Methods and Application (ASESMA), University of Ibadan. Organised by University of Ibadan, University of IIIinois and Arizona state university. Held from 05-09 August, 2024, in University of Ibadan.

2. Fourth Quarter 2023 NUC PARASTATAL SERVICOM COMMITTEE (PSC) Meeting Held in the Nnamdi Azikiwe University, Awka (7-10 NOVEMBER, 2023).

3. Cape Diem Workshop on Developing Blended Learning. A workshop held on November 8 and 9, 2022 at the Trenchard Hall, University of Ibadan.

4. "Improving Student Engagement and Success in South African Higher Education: Lessons from the pandemic". A 1-hr virtual NADEOSA webinar held on October 13, 2022 and presented by Prof Francois Strydom and Dr Sonja Loots from the University of the Free State.

5. Professional and communications training for scientists (SMR 3710): 23 May to 27 May, 2022. An online training organised by ICTP.

6. Partnership for Enhanced And Blended Learning West Africa Project (PEBL-WA).An 8-month online project sponsored by The Association of Commonwealth Universities (ACU) in collaboration with The National Open University Nigeria(NOUN) for training 11 institutions from Ghana and Nigeria:7th February-16th September, 2022.

7. ICTP SMR 3760-IUPAP Centenary (July 11-13, 2022).

8. Professional and communications training for scientists (SMR 3710): 23 May to 27 May, 2022. An online training organised by ICTP.

9. "Predatory Academic Practices in Nigeria:Combatting the Scourge"A 2-hr webinar held on March 9,2022 btw 11:00 and 1p.m. West Central Africa.Organised by Nigerian Academy of Science (NAS).

10. "Combatting Predatory Academic Journals and Conferences".A 2hrs webinar organized by InterAcademy Partnership(IAP) held online or virtually on March 16, 2022 betwee 13:00-15:00 UTC.

11. 2021 Fourth quarter, NUC PARASTATAL SERVICOM COMMITTEE (PSC) meeting held at the Federal University, Kashere,Gombe state (6th -9th December, 2021).

12. 2021 Third quarter NUC PARASTATAL SERVICOM COMMITTEE (PSC) meeting held at the National Universities Commission, Abuja (27th -30th September and October 1, 2021).

13. Covid-19: Vaccine hesitancy - myths and reality by Dr.Onyema Ogbuagu.
A virtual webinar organised by Virtual Diaspora Speaker Series, held on Saturday, December 12,2020 at 6pm, Nigerian time.

14. Are Conferences Really Changing?A 60minutes Online webinar held on Thursday,10 December 2020 at 2p.m. Presented by Tony Carr.

15. Facilitating Online 2020-3 held online between 07 September 2020-06 November 2020.

16. E/merge Africa organize webinar series with Henry Stewart-Founder and Chief Happiness Officer :"How to Create Happy, Productive Workplaces " (60 minutes zoom Webinar),Monday,October 26,2020.

17. Joint PedaL-PEBL inter-partnership training on Technology Enhanced Programme on Online Grading held online on 5-19 September 2020.

18. PedaL Online:Technology for Transformative Pedagogy held online on July 24-August 16, 2020.

19. The Conversation's science communication webinar,Tuesday, July 21,2020 (120 minutes online zoom conference).

20. "COVID-19: Sparking a Revolution for Transforming the Higher Education Landscape in Nigeria (Module 2)" Tuesday, June 23,2020 (120 minutes online zoom conference).

21. The Article Publishing Process: An Elsevier Author Workshop at Africa on Monday 01 June, 2020 (120 minutes online zoom conference).

22. Teams for Tertiary Training Day on Tuesday 26 May,2020(4hours online training).

23. 2019 Fourth Quarter NUC PARASTATAL SERVICOM COMMITTEE (PSC) Meeting.November 26-29,2019,Nigeria Police Academy,Wudil,Kano State.

24. Mini-African School on Electronic Structure Methods and Applications (MASESMA) November 11-15,2019, Kigali,Rwanda (**Poster Presented**: Computation of Transport Properties of Some Liquid Binary Alloys.

25. 3rd Quarter 2019 NUC/PARASTATAL SERVICOM COMMITTEE (PSC) Meeting.October 14-17,2019,Federal University of Technology, Owerri, Imo State.

26. Training Workshop On Computational Studies And Molecular Dynamic Simulation,Postgraduate College,University of Ibadan,29 April,2019-11 May,2019.

X. Major Conferences Attended with Papers Read (long time ago):

1. 3rd International conference on scientific research in Nigeria, Faculty of Science, University of Ibadan, 16-19 May, 2017 (**Paper Read**: **Awe, O.E**; Thermodynamic, structural and transport properties of Cd-Tl and Sn-Tl liquid alloys).

2. The 8th International conference of the African Materials Research Society, Accra, Ghana, 7-10 December 2015 (**Paper Read**: **Awe, O.E**; The role of size effects on the bulk, surface and transport properties of Copper-Tin liquid alloys).

3. 38th Nigerian Institute of Physics Annual Conference, Department of Physics, Faculty of Science, Olabisi Onabanjo University, Ago Iwoye, Ogun state, Nigeria, 5-9 October, 2015.

4. 2nd International Conference on Scientific Research and innovation in Nigeria, Faculty of science, University of Ibadan, 16-20 March, 2015.

5. 37th Nigerian Institute of Physics Annual Conference, Oduduwa University, Ipetumodu, Osun state, Nigeria, 27-31 October, 2014.

6. Training on Maple Version 18 Software, Department of Mathematics, University of Ibadan,Ibadan,Nigeria,3-5 June 2014

7. Effective use of Bioinformatics for Research, Department of Computer Science, University of Ibadan, 22 May, 2014
8. Faculty of Science International Conference on "Science and sustainable development in Nigeria", University of Ibadan ,Ibadan Nigeria, 6 - 10 May, 2013

9. Advance Analysis: With R Software and Matlab, Department of Statistics, University of Ibadan, 2012.

10. Workshop on Responsible conduct in research, Faculty of Science, University of Ibadan, 2012.

11. E-learning workshops (Lagos and Abuja), 2009-2011

12. Nigerian Institute of Physics 34th Annual Conference,CERD-OAU,Ife,Nigeria, 2011

13. Nigerian Institute of Physics 33rd Annual Conference,University of Ibadan,Nigeria, 2010

14. Advanced ICT Techniques,University of Ibadan,Nigeria, 2009

15. ICT in Teaching, Research and Administration,University of Ibadan,Nigeria, 2009

16. School on Electronic Structure Methods,Cape Town South Africa (Smr1979), 2008

17. School on Computational Condensed Matter Physics, National Mathematical Centre, Abuja Nigeria (Smr1921) 2007

18. Understanding Molecular Simulations, Universiteit Van Amsterdam, Amsterdam, Netherlands 2007

19. Regional College on Superlattice and Nanotechnology,University Of Cape Coast, Cape Coast, Ghana 2006

20. African School and Workshop on X-Rays in Materials,Cheikh Anta Diop University, Dakar, Senegal 2005

21. Unesco African Regional Workshop on Active Learning In Optics and Photonics University of Cape Coast, Cape Coast, Ghana 2004

22. Regional College on Super lattice and Nanotechnology,University Of Cape Coast, Cape Coast, Ghana 2004

23. 3rd Regional College on Condensed Matter Physics,University of Cape Coast, Cape Coast, Ghana 2002

24. 1st Regional College on Condensed Matter Physics, University of Cape Coast, Cape Coast, Ghana 2001

RESEARCH FOCUS

My research interest falls within the realm of Computational condensed matter physics. The diversity of materials studied in this field of Physics makes it a multi-disciplinary and even a trans-disciplinary field. Thus, Condensed matter physics embraces solid state physics, materials science, and it overlaps with chemistry, nanotechnology, and engineering. Materials of specific interest include crystalline solid (such as metals, semiconductors, insulators, semimetals, etc), non crystalline solids (such as amorphous solids, granular matter), soft matter (such as liquid crystals, polymers, foams and gels, etc), and nanomaterials. In the course of my research work, specific attention has been given to (i) modeling the thermodynamic and thermophysical properties of liquid alloys using existing models, (ii) formulation of new model on the basis of existing theories, to study the thermodynamic properties of liquid alloys with the aim of understanding the mixing behaviour and industrial relevance of liquid alloys of interest, (iii) prediction of thermodynamic activities of components of ternary and multicomponent liquid alloys, and (iv) fabrication of solar cells and theoretical study of the dynamics of the Ionosphere.

I have worked on 46 liquid metals and alloys which have been identified to be useful in industries for various technological purposes. More thermodynamic light has been thrown on the existing knowledge on the 46 liquid alloys and thus, their industrial relevancies are better understood.

A new thermodynamic model based on existing quasi-lattice model has been established for compound forming ternary liquid alloys. Also, a new model of computing infinite dilute activity coefficients of binary liquid alloys using existing complex formation model was established. This latter model will predict the values of infinite dilute activity coefficients of alloys that cannot be obtained experimentally but which are crucial to both scientific and engineering applications.

Due to increasing industrial interest in ternary and multicomponent liquid alloys, we have predicted the thermodynamic activities of components of four ternary and one quaternary (multicomponent) liquid alloys which have been found to be lead-free solders.

We have expanded the focus of research interest to include the fabrication of solar cells and a theoretical study of the Ionosphere. Also, a preliminary work has been undertaken on the theoretical study of the dynamics of the Ionosphere with the intention of understanding how this dynamics reflect on radio signals. This knowledge is necessary for solving space communication problems.

Prof. O. E. Awe **5/12/2024**