DR. AGUMBA JOHN ONYANGO

Position: **Senior Lecturer**, Department of Physical Sciences, Jaramogi Oginga Odinga University of Science and Technology-JOOUST
Address: P.O Box 210-40601, Bondo
Tel: +254 721835268/+254727021063
Email: agumba.john@gmail.com, agumba.john@yahoo.com, agumba.john@hotmail.com, j.agumba@jooust.ac.ke

Website: www.jooust.ac.ke
Google Scholar: John Agumba - Google Scholar
Researchgate: ResearchGate

PERSONAL STATEMENT

I am an ardent, passionate, strong but flexible result oriented research scientist who achieves his goals with utmost drive and zeal

PERSONAL DATA

Date of Birth:2nd May 1975

Place of Birth: Homa-Bay County

Country of Birth: Kenya

Marital Status: Married

Children: Two

Languages Spoken: English, German, Kiswahili, Dholuo

COUNTRIES VISITED

Uganda, Ethiopia, Egypt, Qatar, United Arab Emirates, Turkey, Germany, Switzerland, France

EDUCATION

2012-2015	University of Freiburg,	Doctor of Philosophy (Ph.D), Physics Germany
2011-2012	German Language Course	Grade B2
2006-2009	Kenyatta University, Kenya	M.Sc. Physics. (Material Physics)
2007-2009	Bell Institute of technology	Dip. Computer networking & Engineering
1996-1999	African Virtual university	Introduction to Engineering
1995-1999	Kenyatta University, Kenya	B.Ed (Physics & Mathematics) (Hons.)
1990-1993	Bishop Mugendi Sec. School	K.C.S.E.
1982-1989	Rapora Primary School	K.C.P.E.

EMPLOYMENT HISTORY

1. ***Date:*** *June. 2022 To Date- Senior Lecturer*, Department of Physical Sciences

   Name of Employer: JOOUST

   Address of Employer: P.O. Box 210-40601, Bondo-Kenya

   Position Title: Research Scientist/ Lecturer

   Salary: €22,563, – €38,126 p.a

   Duties: Performing research, lecturing and writing grant proposals

2. ***Date:*** *Sep. 2019-May, 2022*, Department of Physical Sciences

   Name of Employer: JOOUST

   Address of Employer: P.O. Box 210-40601, Bondo-Kenya

   Position Title: Research Scientist/ Lecturer

   Salary: €21,563, – €35,067 p.a

Duties: Performing research, lecturing and writing grant proposals

3. ***Date:*** *Sep. 2015-Sep. 2019- Lecturer*, Department of Physics
   Name of Employer: Pwani University
   Address of Employer: P.O. Box 195-80108, Kilifi-Kenya
   Position Title: Research Scientist/ Lecturer
   Salary: €20,563, – €32,067 p.a
   Duties: Performing research, lecturing and writing grant proposals

4. ***Date:*** *April 2012-Sep. 2015*-PhD. Student and researcher University of Freiburg, Germany
   Name of Employer: University of Freiburg
   Address of Employer: Stefan-Meier-Str. 21, 79104 Freiburg, Germany
   Position Title: Research Scientist/ Tutorial Fellow and PhD candidate
   Salary: €10,000 p.a
   Duties: Performing research, lecturing and writing grant proposals

5. ***Date:*** *Sep. 2010 to April 2015- Assistant Lecturer,* Department of Physics
   Name of Employer: Pwani University
   Address of Employer: P.O. Box 195-80108, Kilifi-Kenya
   Position Title: Research Scientist/ Assistant Lecturer
   Salary: €18,281, – €25,261 p.a
   Duties: Performing research, lecturing

6. ***Date:*** *Oct. 2010 to April 2015*- Head of labs and research, Department of Physics
   Name of Employer: Pwani University
   Address of Employer: P.O. Box 195-80108, Kilifi-Kenya
   Position Title: Research Scientist/ Assistant Lecturer
   Salary: Paid Allowance
   Duties: organising physics practicals

7. ***Date:*** *Oct. 2007 to April 2010*- Part time Lecturer
   Name of Employer: KCA University
   Address of Employer: P.O. Box 56808 - 00200, Nairobi -Kenya
   Position Title: Part time Lecturer
   Salary: €11,764, – €15,239 p.a
   Duties: Lecturing and supervising students

8. ***Date:*** *May. 2009 to Oct. 2010*- Assistant Lecturer Nyangóma Technical College (Electronics)
   Name of Employer: Teachers Service Commission
   Address of Employer: P.O. Box Private Bag -Kenya
   Position Title: Assistant Lecturer
   Salary: €10,092, – €14,957 p.a
   Duties: Lecturing and supervising students

9. ***Date:*** *Sep. 2002 to Aug. 2006*- Physics teacher, Homa-Bay High School
   Name of Employer: Teachers Service Commission
   Address of Employer: P.O. Box Private Bag -Kenya
   Position Title: Teacher
   Salary: €10,011 – €14,271 p.a
   Duties: Teaching and mentoring students

WORK EXPERIENCE

Jul. 2022 to Date: Senior Lecturer, Department of Physical Sciences, JOOUST

Sep. 2019 to June 2022: Lecturer, Department of Physical Sciences, JOOUST

Sep. 2015 to Aug. 2019: Lecturer, Department of Physics, Pwani University.

Jan. 2016 to Aug. 2019: Head of Curriculum, Department of Physics, Pwani University.

Sep. 2015 to Aug. 2018: Part-time Lecturer, Department of Physics, JOOUST.

April 2012-Sep. 2015: PhD. Student and researcher University of Freiburg, Germany.

October 2010 to April 2015: Assistant Lecturer, Department of Physics, Pwani University.

October 2010 to April 2015: Head of labs and research, Department of Physics, Pwani University.

October 2010 to April 2015: Part-time Lecturer, Department of Physics, Kenyatta University, Mombasa Campus.

Aug 2007 to April 2010: Part time Lecturer, Department of Computer Science, KCA University.

May 2009 to October 2010: Assistant lecturer, Nyangóma Technical College (Electronics).

September 2002 to August 2006: Physics Teacher at Homa-Bay High School.

RESEARCH INTERESTS

- Biopolymer material engineering
- Medical Physics
- Polymer science
- Structural and morphological control, characterizations and device applications of conjugated polymers
- Nanoelectronics and Nanoscale devices fabrication
- Organic device fabrications (OPVs, OFETs, OLEDs, Organic sensors
- Device interfacing and automation

TECHNICAL SKILLS

- The organic materials device fabrication (OPVs, OLEDs, OFETs)
- Skills in the study of conjugated polymers
- Atomic Force Microscopy (AFM) techniques
- Optical spectroscopy techniques
- Transmission electron microscopy
- Optical microscopy techniques

- Sound knowledge in digital electronics with data acquisition and PC interfacing
- Embedded system design with microprocessors and microcontrollers
- Skills in design and construction of electronic interfaces for automating experiments and its applications with National Instrument's data acquisition boards and other equipment
- Good skills in thin film science (Chemistry & Physics)
- Skills in Computational Material Science
- Adequate skills in high level programming in LabVIEW-For interfacing and automation, modeling, computations and analysis
- Programming skills in C#, C++ and Fortran

CURRENT SCIENTIFIC DUTIES

- Physics Lecturer at Physical Sciences, JOOUST
- Research Scientist
- Experimental Solid State and Material Physics Research team leader
- Student's mentorship and supervision
- Departmental postgraduate coordinator

UNITS TAUGHT

- Condensed Matter Physics
- Material Science
- Polymer physics
- Properties of Thin Films

- Quantum Mechanics
- Electricity and Magnetism
- Classical Electrodynamics
- Semiconductor Physics and devices
- Atomic Physics

SELECTED STUDENTS' SUPERVISION

- **Undergraduate Supervision**

1. **Name of student:** Solomon Luvayi Joseph (BSc. Physics)

   Registration Number: I20/PUC/0128/12

   Project Title: *Characterization of Chitosan-Silver Capped Nanoparticles as Opto-Sensors and UV Filters*

   Institution: Pwani University

   Date Completed: 2016

2. **Name of student:** Mwende Mbilo (BSc. Physics)

   Registration Number: I20/PUC/0127/12

   Project Title: *Design and Fabrication of a Temperature Detection Device Using LM34 Temperature Sensor*

   Institution: Pwani University

   Date Completed: 2016

3. **Name of student:** Solomon Luvayi Joseph (BSc. Physics)

   Registration Number: I20/PUC/0128/12

   Project Title: *Characterization of Chitosan-Silver Capped Nanoparticles as Opto-Sensors and UV Filters*

   Institution: Pwani University

   Date Completed: 2016

- **Graduate Supervision**

1. **Name of Student:** Fred Omboga (PhD. Physics)

   Registration Number: I84/PU/2168/2013

   Thesis Title: *Theoretical Study of Effects of Applied Uniaxial Stress, Spatial Dielectric Functions and Temperature Gradient on Photoionization Cross Section of Hydrogenic Donor Impurity and Non Hydrogenic Donor Impurity in a Cylindrical and Rectangular Quantum Well Dots*

   Institution: Pwani University
   Date Completed: 2021

2. **Name of student:** Jack Adem (PhD. Physics)

   Registration Number: PHDS/0050/2015

   Thesis Title: *Correlation between the Degree of Alignment and Opto-Piezoelectric Properties of Cellulose Nanocrystals Fabricated from Water Hyacinth*

   Institution: JOOUST

   Date Completed: 2022

3. **Name of Student:** Enos (PhD. Physics)

   Registration Number: PHDS/0050/2015

   Thesis Title: Coursework
   Institution: JOOUST

   Date Completed: Continuing

4. **Name of Student:** Peter Kirui (PhD. Physics)

   Registration Number: PHDS/0050/2015

   Thesis Title: Continuing

   Institution: JOOUST

   Date Completed: Continuing

5. **Name of Student:** Edwin Atego (MSc. Physics)

   Registration Number: S251/4230/2019

Thesis Title: *Correlation between Preparation Methods and Optical Properties of Chitosan from Shrimp for Application in Optoelectronic Devices*

Institution: JOOUST

Date Completed: 22nd April 2022

6. **Name of Student:** Fridah Wakuthii Muriithi (MSc. Physics)

   Registration Number: S251/4076/2019

   Thesis Title: *Isolation and Characterization of Cellulose Nanocrystals from Water Hyacinth (Eichhornia Crassipes) For Piezoelectricity Devices*

   Institution: JOOUST

   Date Completed: Continuing

7. **Name of Student:** Antonate Nafula Wanyonyi (MSc. Physics)

   Registration Number: S251/4257/2019

   Thesis Title: *The Correlation between Preparation Method and Optical Signatures of Cellulose Nanocrystals and its Composites Fabricated from Rice Husks*

   Institution: JOOUST

   Date Completed: Continuing

8. **Name of Student:** Juma Hanif (MSc. Physics)

   Registration Number: I56/PU/2037/13

   Thesis Title: *Mechanical and Opto-Electrical Characterization of Chitosan-A Marine Based Biomaterial*
   Institution: Pwani University

   Date Completed: 2017

9. **Name of Student:** Mwende Mbilo (MSc. Physics)

   Registration Number: SG23/PU/36055/16
   Thesis Title: *The Effects of Structure Formation Methods on the Opto-Electronic and Electrical Properties Of Organometalic Halide Perovskite ($CH_3NH_3MH_3$) Thin Films*

Institution: Pwani University

Date Completed: 2019

10. **Name of Student:** Solomon Luvayi Joseph (MSc. Physics)

    Registration Number: SG23/PU/36054/16

    Thesis Title: *Tuning the Morphological Formations and Optoelectronic Properties of Reduced Graphene Oxide using Chitosan Bio-Polymer for High Power Semiconductor Applications*

    Institution: Pwani University

    Date Completed: 2019

SELECTED GRADUATE STUDENTS EXAMINATION

1. **Name of Student:** Leonard Machuka (BSc. Physics)

   Registration Number: I56/PU/2030/13

   Project Title: *The Effect of Hermanson´s Spatial Dielectric Function on the Density of States in a Gallium Arsenide Quantum Dot (GaAs QD) of Rectangular Cross-Section*

   Institution: Pwani University

   Date Examined: 2018

2. **Name of Student:** Winnie Achieng' (BSc. Physics)

   Registration Number: I20/PUC/3117/14

   Project Title: *A Theoretical Calculation of the Variation of the Photoionization Cross-Section with Position of a Donor Impurity in a Quantum Well Dot of Square Cross-Section Using a Variational Technique*

   Institution: Pwani University
   Date Examined: 2018

SCIENTIFIC AWARDS

1. **2004:** Best Physics teacher in Homa-Bay District-Kenya
2. **2007:** Supervisor of the best Physics project in Kenya
3. **2013:** Best Poster award, Runners up, DFG Conference, Berlin, Germany
4. **2014:** Best poster award, IRTG Summer School, Mittelwihr, France

MEMBERSHIP OF PROFESSIONAL BODIES

1. African Science Initiative (ASI)
2. The Physics Community in Kenya
3. The Physical Society of Kenya (PSK)
4. Kenya Education Network (KENET)

SELECTED INVITED CONFERENCE & WORKSHOP TALKS

1. *"2nd East African Endometriosis Conference (EAEC, 2022)"*, Jun 22-24, 2022 at Panafric Hotel, Nairobi

2. *"Evidence-Based Science, Technology and Innovation Mainstreaming in Rapidly Changing Times"* 14-17 December 2021, National Council for Science, Technology and Innovation, Lake Naivasha Resort, Kenya

3. *"Taking Laser Technology and Photonic Research to the next level in Kenya",* Lasers and Photonic Virtual Meeting, 4-5 October 2021, Maasai Mara University, Kenya

4. *"The Role Of Alumni Association in the Global Development Of Science & Technology In Development Countries"* The 6Th AvH-Kenya "Kollegs" virtual conference, 6-8 October 2021, Kirinyaga University, Kenya

5. *"East Africa-Microscopy 2021 Workshop"* 24-27 May 2021, University of Witwatersrand , Johannesburg, South Africa

6. *"The first East African Endometriosis Virtual Conference"*, 19-21 May 2021, University of

Nairobi, Kenya

7. "*Temperature Dependent Interplay between Emitting Species in Highly Ordered Poly(thiophenes) as Revealed by Optical Spectroscopy*" **International Conference on Material Science**, 20-21 April, 2020, Paris, France

8. "*Temperature Dependent Interplay between Emitting Species in Highly Ordered Poly(thiophenes) as Revealed by Optical Spectroscopy*" **14th International Conference on Materials Science and Technology,** March 25-26, 2020, Miami, USA

9. "*Temperature Dependent Interplay between Emitting Species in Highly Ordered Poly(thiophenes) as Revealed by Optical Spectroscopy*" **13th International Conference on Smart Materials and Polymer**, February 19-20, 2020, Paris, France

10. "*Online Real-Time Science Laboratory Workstation for Real-Time Conduction of Experiments by Engineering and Science Students".* **eLearning Africa 2019**, October 23-25, 2019, Abidjan, Côte d'Ivoire

11. *Temperature Dependent Interplay between Emitting Species in Highly Ordered Poly(thiophenes) as Revealed by Optical Spectroscopy*" **3rd International Congress on Magnetism and Magnetic Materials,** October 16-17, 2019 Barcelona, Spain

12. "*Temperature Dependent Interplay between Emitting Species in Highly Ordered Poly(thiophenes) as Revealed by Optical Spectroscopy*" **Global Experts Meeting on Green Energy and Recycling,** December 02-03, 2019, Berlin, Germany

13. "*Temperature Dependent Interplay between Emitting Species in Highly Ordered Poly(thiophenes) as Revealed by Optical Spectroscopy*" **7th International Conference on Smart Materials and Structures,** July 02-03, 2018, Vienna, Austria

14. "*Temperature Dependent Interplay between Emitting Species in Highly Ordered Poly(thiophenes) as Revealed by Optical Spectroscopy*" **5th International Conference and Exhibition on Nanoelectronics and Advanced Intelligence Systems**, December 03-

04th 2018 at Bangkok, Thailand

15. "*Single Crystals of P3HT: A route towards long range charge pathways*?'' **Presentation at the Institute of Physics, Faculty of Mathematics and Physics; Albert-Ludwig-University of Freiburg**, Germany, February 2015

16. ''*Molecular Ordering of P3HT via Self-seeding Technique''* **Presentation at Universite´ de Mulhouse**, France, October 2014

17. *"Device Interfacing and automation using LabVIEW*" **Kenyatta University Postgraduate seminar**, Nairobi, Kenya, August 2009

18. *"The optimization of the electric conductivities of D.C. sputtered Cuprous Oxide thin films for solar cell fabrication"* **Annual meeting on optoelectronics, Nairobi, Kenya, November**, 2009

19. *"Design and fabrication of a simple four point probe system for electrical characterization of thin films"* **East African Regional Scientific Conference of Pure and Applied Sciences,** Nairobi, March, 2010

PROJECT PROFILE

1. **Project 1:** Structure formation (crystallization) of methyl organometallic halide perovskites

   Funding: Pwani University

   Amount: €1,000

   Personal Involvement: I was personally involved in the innovation, publication, the project management, supervision and development of methodologies.

   Experience and skills gained: The experience gained from the proposal writing, innovation, supervision and development of the methodologies in this project are relevant for my role in this position.

2. **Project 2:** Tuning the band gap energy of grapheme oxide using chitosan biopolymer
   Funding: Pwani University

Amount: €1,280

Personal Involvement: I was personally involved in the innovation, publication, the project management, supervision, development of methodologies.

Experience and skills gained: The experience I gained from the proposal writing, innovation, supervision and development of the methodologies in this project are relevant for my role in this position.

3. **Project 3:** LabVIEW Run Four Point Probe: Electrical Characterization of semi-Conductor Thin Films made Easy by Four Point Probe System Controlled by LabVIEW

Funding: None

Amount: None

Personal Involvement: I was personally involved in the innovation, publication, the project management, supervision, development of methodologies

Experience and skills gained: The experience gained from the proposal writing, innovation, supervision and development of the methodologies in this project are relevant for my role in this position.

4. **Project 4:** Regio-Regular Oligo and Poly(3-hexyl thiophene): Precise Structural Markers from the Vibrational Spectra of Oligomer Single Crystals.

Funding: DAAD/IRTG

Amount: €5,283

Personal Involvement: I was personally involved in the innovation, publication, the project management, supervision and development of methodologies

Experience and skills gained: The experience I gained from the proposal writing, innovation, supervision and development of the methodologies in this project are relevant for my role in this position.

5. **Project 5:** Light absorption of poly(3-hexylthiophene) single crystals

Funding: DAAD/IRTG

Amount: €7,956

Personal Involvement: I was personally involved in the, publication, the development of methodologies and results interpretation

Experience and skills gained: The experience I gained from the proposal writing, development of the methodologies and results interpretation in this project are relevant for my role in this position.

ONGOING RESEARCH

I am a founder and research group leader of **Material Science Research Group (MSRG)** comprising teaching staff members and graduate students of the Physical Science department where we currently involve in the listed research topics.

1. *Construction and improvement of the mechanical properties and susceptibility to water induced degradation of earthen blocks, using biopolymer chitosan*

We seek to introduce chitosan biopolymer additive during the fabrication process of new earthen brick specimens and its effect on the blocks in terms of microstructure and the mechanical properties studied. In order to analyze the effects of adding the polymer on the mechanical properties, Biot biphasic model will be employed in order to understand the mechanical properties.

2. *Orientation Dependent Piezoelectric Effect of Cellulose Nanocrystals from Water Hyacinth*

Piezoelectricity which is the change of electrical polarization in a material in response to mechanical stress has been studied for decades and found to be more pronounced in nanomaterials such as nanocellulose. However, the topic has been covered in the scientific literature to a very limited extent and only few recent studies report experimental evidence of CNC piezoelectricity. In this project, we seek to understand the influence of the orientation of the cellulose nanocrystals extracted and processed from water hyacinth on their piezoelectric effect.

3. *Optical Band Gap Engineering of Cellulose Nanocrystals from Rice Husks*

In this project, we extract cellulose from rice husks and tune the optical band gap with an aim of application in photonics.

4. *Processing of Halogen-Free Membranes for Waste Water Ultrafiltration and Purification from Cellulose Nanocrystals (CNC)/Chitosan Nanocomposites*

This project aims to develop of an innovative management approach for the manufacturing halogen-free cellulose nanocrystals (CNC)/chitosan based nanocomposite membranes for waste water treatment. The interinstitutional and interdisciplinary research team will extract cellulose nanocrystals from coconut husks and chitosan from squid gladii both abundant biowastes in Kenyan coast of Kilifi. Additionally, these extractions will be done within the economic and environmental constraints. This project has thus the potential to open new economic opportunities

through the extraction of valuable material from nuisance chitosan and coconut husk wastes. An added benefit that this project will achieve is that cellulose from coconut husks and chitosan from squid gladii bio wastes as raw material will help in environmental management.

5. Electrochemical Reduction of Carbon Dioxide

Electrochemical reduction of CO_2 is a green chemistry way of recycling CO_2 back to reusable forms of carbon. Metal nanocatalysts have the potentials to selectively reduce CO_2 to one carbon product such as CO, formic acid, or a hydrocarbon. Nanostructured are essential for understanding CO_2 reduction reaction mechanism and for optimizing nanocatalyst performance. This research leads to a better understanding of the reaction as it occurs on nanomaterial surfaces to achieve efficient conversion of CO_2 to specific carbon products. Among several available strategies, CO_2 reduction via the electrochemical approach is particularly attractive since the required energy input can be potentially achieved.

6. Computational Screening of Zeolites for the Adsorption of Selected Pharmaceutical Pollutants

In this research, we use as a screening tool to identify promising zeolites for the removal of selected pharmaceutical pollutants.

7. Screening of Metal–Organic Frameworks for Absorption of Pharmaceutical Pollutants: From Molecular Simulations to Machine Learning

Computation-ready experimental metal–organic framework (CoRE-MOF) database is screened to identify a shortlist of potentially high-performing MOFs for pharmaceutical pollutant removal.

8. *Role of Pore Chemistry and Topology in the Heavy Metal Sorption by Zeolites: From Molecular Simulation to Machine Learning.*

9. In this project, the adsorption of hazardous heavy metal ions on zeolites is investigated by employing molecular simulations and machine learning techniques, where the role of pores, topology, and chemical characteristics in the heavy metal sorption is examined.

10. Mechanical and Opto-Electronic Characterization of Marine Based Biomaterials for Wound Healing and Dressing.

This project seeks to harvest marine-based chitosan from the squid gladius found along the coastal areas of Kilifi and Mombasa and performing their mechanical, structural, electrical and optical properties measurements with an aim to utilizing it for wound healing and dressing.

11. *The Effects of Structure Formation Methods on the Opto-Electronic and Electrical Properties of Organometalic Halide Perovskite ($CH_3NH_3MH_3$) Thin Films.*

We carry out this Research to assess the relationship between different deposition methods and the opto-electronic and electrical properties of the resultant organometallic halide perovskite thin films. This is with an aim to fabricate a stable high quantum efficiency solar cell.

COLLABORATORS

1. IRTG / Soft Matter Science, Institute of Physics, University of Freiburg-Germany https://www.softmattergraduate.uni-freiburg.de/
2. Electrochemistry Research Lab, Cape Peninsula University of Technology-South Africa
3. Nanoscale electrochemical systems, Trinity College of Dublin, The University of Dublin-Ireland.
4. Department of Pure and Applied Chemistry, Masinde Muliro University of science and Technology, P.O Box 190 Kakamega 50100, Kenya
5. Institute of Chemistry, Chinese Academy of Science, Beijing 100190, China
6. Beijing Institute of Technology, China
7. Computational Quantum Chemistry Research Group, Department of Pure and Applied Chemistry, Faculty of Physical Sciences, University of Calabar, 1115 Calabar, Nigeria

SELECTED PUBLICATIONS

1. Godfrey O. Barasa, Celline Awino, Canglong Li, **John O. Agumba,** Kevin O. Okoth, Denis Magero. Indium decorated nanoporous Ag as an efficient catalyst for enhanced CO_2 electroreduction. Volume 129, July 2022. https://doi.org/10.1016/j.solidstatesciences.2022.106916

2. Jack A Adem, **John O Agumba**, Godfrey O Barasa, Angeline A Ochung' (2022). Hydrolysis Temperature dependent Structural, Optical Band Gap and the associated

Urbach Tail Energy of Cellulose Nanocrystals Fabricated from Water Hyacinth. European Journal of Applied Sciences. Vol. 10 No. 1.
DOI: https://doi.org/10.14738/aivp.101.11506

3. Jack A Adem, **John O Agumba,** Godfrey O Barasa, Angeline A Ochung' (2022). The Role of Acid Concentration on Band Gap Shrinkage in Cellulose Nanocrystals Fabricated from Water Hyacinth. Journal of Material Sciences & Manufacturing Research. SRC/JMSMR-127. DOI: doi.org/10.47363/JMSMR/2022(3)123

4. Atego, E., **Agumba, J.O.** and Barasa, G.O. (2022). The Signatures of Acid Concentration on the Optical Band Gap and Associated Band Tails of Chitosan from Shrimp for Application in Optoelectronic Devices. Advances in Chemical Engineering and Science, 12, 1-12. https://doi.org/10.4236/aces.2022.121001

5. **John AO,** Adem JA (2021). The Optical Signatures of the Temperature Controlled Order Disorder Conformational Transition during the Aggregation Processes in Poly (3-Hexylthiophene-2, 5- Diyl) (P3HT). Thin Films. SunText Rev Mat Sci 2(1): 108. DOI: https://doi.org/10.51737/2766-5100.2021.00

6. L Joseph1, **Agumba O John**, Fanuel M Keheze, The Role of Bio-Extracted Reduced Graphene Oxide in the Crystallization Kinetics of Chitosan Bio-Polymer, *Mater Sci Manufac Res,* 2021; **2**(1), 1-4

7. **Agumba O. John**, Temperature Dependent Interplay between Emitting Species in Highly Ordered Poly(thio-phenes) as Revealed by Optical Spectroscopy, *Euro. J. Appl. Eng. Sci. Res* 2020, **S** (9)

8. Mwende Mbilo**, Agumba Onyango John**, Fanuel Keheze Mugwang'a. Correlation between the Preparation Methods and the Structural Morphologies of Organometallic Halide Perovskite Thin Films. *Colloid and Surface Science* 2019, **4**(1), 7-12

9. Mwende Mbilo, **Agumba O. John** and Fanuel K. Mugwang'a. Correlation between the morphology and the opto-electronic and electrical properties of organometallic halide perovskite ($CH_3NH_3MH_3$) thin films. *Mater. Res. Express,* 2019, **6,** 076431

10. **Agumba O. John**. The Role of Solvents' Dielectric Constants in Delicate Interplay between Microstructure and Optical Properties of Poly (3-Hexylthiophene) Thin Films. *American Journal of Nanoresearch and Nanotechnology Research,* 2019, **7** (1), 1-13

11. Solomon L. Joseph, **Agumba O. John**, Fanuel K. Mugwanga, Gabriel G. Katana, Tuning the Band gap Energy of Reduced Graphene Oxide using Biopolymer Chitosan for High Power and Frequency Device Applications. *American Journal of Polymer science and Engineering,* 2019, **7** (1), 1-12

12. Juma Hanif, **John Onyango Agumba,** Katana Gona Gabriel, The α- and β-Relaxation Processes of Polymeric Chitosan from Squid Gladii as Revealed by Dynamic Mechanical Analysis. *American Journal of Mechanical and Materials Engineering*, 2018, **2** (4), 40-45

13. **Agumba Onyango John**, Adem Abibo Jack, The Inter-play of the Opto-Electrical Properties of Cuprite and Tenorite Semiconductors for Solar Cell Application. *American Journal of Nano Research and Applications*, 2017; **5**(6): 81-86.

14. Khosrow Rahimi, Ioan Botiz, **John O. Agumba**, Sajedeh Motamen, Natalie Stingelin, Günter Reiter, Light Absorption of Poly(3-hexylthiophene) Single Crystals. *RSC Adv.,* 2014, **4**, 11121

15. Yingying Wang, Barbara Heck, Daniel Schiefer, **John O. Agumba**, Michael Sommer, Tao Wen, Günter Reiter, Anisotropic Photophysical Properties of Highly Aligned Crystalline Structures of a Bulky Substituted Poly(thiophene). *ACS Macro Lett*, 2014, **3**, 881−885

16. Luigi Brambilla, Matteo Tommasini, Ioan Botiz, Khosrow Rahimi, **John O. Agumba**,Natalie Stingelin, and Giuseppe Zerbi, Regio-Regular Oligo and Poly(3-

hexyl thiophene): Precise Structural Markers from the Vibrational Spectra of Oligomer Single Crystals. *Macromolecules*, 2014, **47**, 6730−6739

17. **John O. Agumba**, John Okumu, Partick Karimi, LabVIEW run Four Point Probe device; Electrical characterization of semiconducting thin films made easy by four point probe system controlled by LabVIEW *lap Lambert Academic Publishing GmbH & Co. Saabrücken*, Germany, 2012

18. **John O. Agumba**, P.K. Karimi, J.O. Okumu, W.K. Njoroge, Design and Fabrication of a simple four point probe system for electrical characterization of thin films. *International Journal of Current Research*. 2011, **3** (7), 135-139

19. **Agumba O. John**, Katana G. Gabriel and Karimi M. Patrick, Towards virtual laboratories: a survey of Labview-based conduction of science experiments via the internet with an Illustrative consideration of remote control of an oscilloscope. *International Journal of Current Research,* 2011, **33** (6), 123-127

REFEREES

1. **Prof. Regina Nyunja**-Dean, SBPMAS, JOOUST, P.O. Box 210-40601, Bondo.
   Email: reginanyunja@yahoo.com
   Cell Phone: +254721465969

2. **Prof. Bernard Okello**-Associate Dean, SBPMAS, JOOUST, P.O. Box 210-40601, Bondo.
   Email: bnyaare@yahoo.com
   Cell Phone: +254723397455

3. **Dr. Angeline Ochung'** – Chair of Department (DPS), SBPMAS, JOOUST, P.O. Box 210-40601, Bondo.
   Email: odekenyadek@gmail.com
   Cell phone: +254722498563