SELINA AMA SAAH

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Mailing Address: Department of Chemical Sciences, University of Energy and Natural Resources, P. O. Box 214.
Sunyani, Ghana

EDUCATION

PhD Inorganic Chemistry, Kwame Nkrumah University of Science and Technology. Dissertation: Syntheses and characterization of bismuth and lead chalcogenides and their ternary alloys from single source precursors**.** June 2018

MPhil Polymer Science and Technology, Kwame Nkrumah University of Science and Technology. Thesis: Syntheses and characterization of lead sulphide from lead alkyl xanthate single source precursors using the melt method. November 2013

BSc Chemistry, Kwame Nkrumah University of Science and Technology. Phytochemical and proximate analyses of *Tetrapleura tetraptera*. July 2010

HONOURS AND AWARDS

Academic Visitor 2017
University of Manchester, School of Chemistry, United Kingdom. Research into the single source routes to the synthesis of lead chalcogenide nanoparticles and thin films

Academic Visitor 2015
Department of Chemistry, University of Zululand, South Africa. Research into the single source routes to the synthesis of lead and bismuth chalcogenide nanoparticles.

Academic Visitor 2014
University of Manchester, School of Chemistry, United Kingdom. Research into the single source routes to the synthesis of binary and ternary lead chalcogenide thin films.

Academic Visitor 2012
University of Manchester, School of Chemistry, United Kingdom. Research into the single source routes to the synthesis of binary lead sulphide nanoparticles.

RESEARCH EXPERIENCE

Dissertation, Kwame Nkrumah University of Science and Technology, Ghana. 2018
Supervisor: Prof. Johannes Awudza

- Developed the skills in thesis and publication writing.

University of Manchester, United Kingdom 2012 to 2017
Supervisor, Prof. Paul O'Brien

- Developed the skills in the syntheses and characterization of single source precursors.
- Developed the skills in the syntheses and characterization of nanomaterials for solar cell applications.
- Had hands on training on instrument such as Scanning electron microscope, x-ray diffractometer, energy dispersive spectrometer, transmission electron microscope.

University of Zululand, South Africa 2014 to 2015
Supervisor**,** Prof. Neerish Revaprasadu

- Developed the skills in the syntheses and characterization of single source precursors.
- Developed the skills in the syntheses and characterization of nanomaterials for solar cell applications.
- Had hands on training on instrument such as atomic force microscope, micro elemental analyzer, uv-vis-nir spectrophotometer, infrared spectroscope.

Platinum seal company limited, Ghana 2013
Supervisor**,** Mr. Frank Lartey

- Developed the skills in the production of polymer modified bitumen for road construction.

TEACHING EXPERIENCE

University of Energy and Natural Resources, Ghana Jun. 2022 to date
Senior Lecturer, Department of Chemical Sciences

- Taught materials science, an undergraduate course covering topics such as: Types of materials (wood, metals, ceramics, biomaterials, textiles, plastics, nanomaterials), properties and applications of the different types of materials and environmental impact of materials.
- Taught main group and transition elements, an undergraduate course covering topics such as: Periodic properties of the main group elements, Metallic and non-metallic elements, Noble gases, Aluminium chemistry, borane chemistry.
- Taught symmetry and group theory, an undergraduate course covering topics such as: Symmetry elements and operations, point groups, Properties and representations of groups and Application of symmetry
- Taught coordination chemistry, an undergraduate course covering topics such as: introduction to coordination chemistry (Werner's theory), classification of ligands, nomenclature of coordination compounds, isomerism, bonding in coordination compounds and properties of coordination compounds.

- Taught photochemistry, an undergraduate course covering topics such as: photochemical reactions, laws of photochemistry, photophysical processes, organic photoreactions
- Taught lanthanides and actinides, an undergraduate course covering topics such as: The chemistry of lanthanides and actinides with emphasis on electronic structure, abundance and distribution, extraction, separation, structure and properties. lanthanide contraction. Uranium chemistry, chemistry of trans uranium compounds.

University of Energy and Natural Resources, Ghana Feb. 2018 to May 2022
Lecturer, Department of Chemical Sciences

- Taught polymer science, an undergraduate course covering topics such as: Classification of polymers, Polymerization processes, Properties of polymers, Application of polymers, Environmental impact of polymers and Waste management techniques.
- Taught materials science, an undergraduate course covering topics such as: Types of materials (wood, metals, ceramics, biomaterials, textiles, plastics, nanomaterials), properties and applications of the different types of materials and environmental impact of materials.
- Taught main group and transition elements, an undergraduate course covering topics such as: Periodic properties of the main group elements, Metallic and non-metallic elements, Noble gases, Aluminium chemistry, borane chemistry.
- Taught symmetry and group theory, an undergraduate course covering topics such as: Symmetry elements and operations, point groups, Properties and representations of groups and Application of symmetry
- Taught coordination chemistry, an undergraduate course covering topics such as: introduction to coordination chemistry (Werner's theory), classification of ligands, nomenclature of coordination compounds, isomerism, bonding in coordination compounds and properties of coordination compounds.
- Taught photochemistry, an undergraduate course covering topics such as: photochemical reactions, laws of photochemistry, photophysical processes, organic photoreactions

From 2018 when I joined the department, I have successfully supervised 33 undergraduate chemistry students.

Kwame Nkrumah University of Science and Technology, Ghana. August 2010 to July 2011
Teaching Assistant, Department of Chemistry

- Organize tutorials for 1st, 3rd and 4th year undergraduate chemistry students in nuclear and inorganic chemistry.
- Assist lecturers in research.
- Also demonstrate analytical and inorganic laboratory practicals to undergraduate chemistry student

OTHER WORK EXPERIENCE

Laboratory Demonstrator, Kwame Nkrumah University of Science and Technology, Ghana 2014 to 2017

- Prepare and demonstrate laboratory procedures for undergraduate and post graduate students in analytical, inorganic and polymer chemistry.

Technician, Central Laboratory, Kwame Nkrumah University of Science and Technology, Ghana 2015

- Develop standard operating procedure for the Central laboratory.
- Digest samples to be analysed using atomic absorption spectroscopy.

PRESENTATIONS AND INVITED LECTURES

Paper Presentation, "PbS_xSe_{1-x} thin films from the thermal decomposition of lead(II) dodecylxanthate and *bis*(*N*, *N*-diethyl-*N'*-naphthoylselenoureato)lead(II) precursors ," The 7th International conference of Nanoscience and Nanotechnology in Africa, 22nd to 25th April, 2018.

Paper Presentation, "Deposition of PbS, PbSe and $PbS_xSe_{(1-x)}$ by spin coating and heating of molecular precursors," The Royal Society-DFID Africa Capacity Building Initiative Award Holder's meeting, 2nd to 4th December, 2018.

Workshop, "The Chemistry of Soap and Sanitizer making," Skill training for the Ghana Students Chemical Society, 15th February 2020.

PROFESSIONAL DEVELOPMENT TRAINING

Workshop
Ghana Science Association –Sunyani branch, 28th March 2019.
Description: A workshop on grant and proposal writing.

Mentor-mentee pairing, University of Energy and Natural Resources, 28th February, 2019.

Capacity Building in Curriculum, University of Energy and Natural Resources, 27-28th September, 2018.

PUBLICATIONS

1. Selina Ama Saah, Nathaniel Owusu Boadi, Patrick Opare Sakyi, Euphemia Quanuaa Smith (2024), Human Health Risks of Lead, Cadmium, and Other Heavy Metals in Lipsticks, Heliyon,

2. Selina Ama Saah, Nathaniel Owusu Boadi, Johannes A. M. Awudza, (2024), Trivalent bismuth xanthates: Synthesis and characterization, MRS Advances, 1-6
3. Nathaniel Owusu Boadi, Selina Ama Saah, Michael Baah Mensah, Johannes A. M. Awudza, (2024), Pb((SePiPr2)2N(S2CNEt2) complex to lead chalcogenide nanoparticles: A pyrolysis approach, Chemistry International, 10,3, 75-80.
4. Bernice Amponsah, Nathaniel Owusu Boadi, Selina Ama Saah, Patrick Opare Sakyi, Eric Selorm Agorku, Harry Okyere, Andrew Nyamful, (2024), Evaluation of Groundwater Quality in Communities near Sokoban Wood Village, Heliyon, 10,12, e3275.
5. Selina Ama Saah, Patrick Opare Sakyi, Nathaniel Owusu Boadi, Franklyn Addai Tieku, Ampem Kwabena Boampong, (2024), Solventless Synthesis of Zinc Sulphide Nanoparticles from Zinc Bis (diethyldithiocarbamate) as a Single Source Precursor, ChemistryOpen, 10.1002/open.202400050.
6. Selina Ama Saah, Patrick Opare Sakyi, David Adu-Poku, Devine N. O. Abam, Mary Antwi, (2024), Spatial distribution of microplastic contamination in Sunyani municipal Rivers, Ghana: Insights into environmental persistence and ecological impact, Chemistry International, 10,2, 47-52.
7. Patrick O Sakyi, Selina A Saah, Prince Baddor, Jacqueline Adu Gyamfi, Nathaniel O Boadi, Emmanuel Broni, Whelton A Miller III, Paul Q Somiah, Samuel K Kwofie, (2024), Bioprospecting of Potential Inhibitors of 5alpha Reductase 2 Inhibitors from Relevant Ethno-pharmacological Plants via In Silico Techniques, Scientific African, 25, 10.1016/j.sciaf.2024.e02264.
8. Nathaniel Owusu Boadi, Selina Ama Saah, Mercy Badu, Frimpomah Baa-Poku, Felix Odame, Patrick Opare Sakyi, (2023), Assessment of sachet water quality in Kumasi, Ghana. Discover Water 3, 24, doi.org/10.1007/s43832-023-00048-8.
9. Selina A Saah, Patrick O Sakyi, David Adu-Poku, Nathaniel O Boadi, Gideon Djan, Desmond Amponsah, Robert NOA Devine, Kojo Ayittey, (2023), Docking and Molecular Dynamics Identify Leads against 5 Alpha Reductase 2 for Benign

Prostate Hyperplasia Treatment, Journal of Chemistry, 2023, doi.org/10.1155/2023/8880213.

10. Amponsah, B., Boadi, N.O., **Saah, S.A.**, Sakyi, P.O., Agorku, E.S., Okyere, H. and Nyamful, A. (2024). Evaluation of Groundwater Quality in Communities near Sokoban Wood Village. Heliyon, 10(12) e32757.
11. Boadi, N.O., **Saah, S.A.**, Mensah, M.B. and Awudza, J.A.M. (2024), Pb((SePiPr2)2N(S2CNEt2) complex to lead chalcogenide nanoparticles: A pyrolysis approach. Chemistry International 10(3) 75-80.
12. Sakyi, P.O., **Saah, S.A**., Baddor, P., Gyamfi, J.A., Boadi, N.O., Broni, E., Miller III, W.A., Somiah, P.Q. and Kwofie, S.K. (2024), Bioprospecting of Potential Inhibitors of 5alpha Reductase 2 Inhibitors from Relevant Ethno-pharmacological Plants via In Silico Techniques. Scientific African, p.e02264.
13. **Saah, S.A.**, Sakyi, P.O., Boadi, N.O., Tieku, F.A. and Boampong, A.K. (2024), Solventless Synthesis of Zinc Sulphide Nanoparticles from Zinc Bis (diethyldithiocarbamate) as a Single Source Precursor. ChemistryOpen, p.e202400050.
14. Boadi, N.O., **Saah, S.A.**, Badu, M. Baa-Poku, F., Odame, F. and Sakyi, P. O. (2023). Assessment of sachet water quality in Kumasi, Ghana. Discover Water **3**, 24, doi.org/10.1007/s43832-023-00048-8.
15. **Saah, S.A.**, Sakyi, P. O., Adu-Poku, D., Boadi, N.O., Djan, D., Amponsah, D., Devine, R. N. O. A. and Ayittey, K. (2023). Docking and Molecular Dynamics Identify Leads against 5 Alpha Reductase 2 for Benign Prostate Hyperplasia Treatment, Journal of Chemistry, 2023, doi.org/10.1155/2023/8880213
16. **Saah, S.A.**, Boadi, N.O., Awudza, J. A. M. and Revaprasadu, N. (2022). Structural influence of nitrogen adducts on the morphology of bismuth sulfide thin films, MRS Advances, 7(30), 757-762.
17. **Saah, S.A**., Boadi, N.O., Sakyi, P. O., Darko, G. and Mensah, M. B. (2022). Risk of Exposure to Trace Elements through the Application of Facial Makeup Powders, *Journal of Chemistry,* 2022, doi.org/10.1155/2022/9229134

18. Kotei, P. A., Boadi, N.O., **Saah, S.A.** and Mensah, M. B. (2022). Synthesis of nickel sulfide thin films and nanocrystals from the nickel ethyl xanthate complex, Advances in Materials Science and Engineering, doi.org/10.1155/2022/6587934
19. **Saah, S.A.**, Boadi, N.O., Awudza, J. A. M. (2022). Facile synthesis of PbS, Bi2S3 and Bi-doped PbS nanoparticles from metal piperidine dithiocarbamates complexes, Results in Chemistry, doi.org/10.1016/j.rechem.2022.100618
20. Azanu, D., Adu-Poku, D., **Saah, S. A.,** and Appaw, W. O. (2021). Prevalence of pharmaceuticals in surface water samples in Ghana. *Journal of Chemistry,* 2021, doi.org/10.1155/2021/7829477.
21. **Saah, S. A.,** Adu-Poku, D. and Boadi, N. O. (2021). Heavy metal contamination and water quality of selected fish ponds at Sunyani, Ghana: A comparison with WHO standards. *Chemistry International,* 7(3), 181-187.
22. **Saah, S. A.,** and Adu-Poku, D. (2021). Phytochemical, proximate, and vitamin C content in Morinda citrifolia (Noni). *Journal of Tropical Pharmacy and Chemistry*, 5(3).
23. Boadi, N. O., Degbevi, M., **Saah, S. A.,** Badu, M., Borquaye, L. S. and Kortei, N. K. (2021). Antimicrobial properties of metal piperidine dithiocarbamate complexes against Staphylococcus aureus and Candida albicans. *Scientific African,* 12, e00846, doi.org/10.1016/j.sciaf.2021.e00846.
24. Boadi, N. O., Badu, M., Kortei, N. K., **Saah, S. A.,** Annor, B., Mensah, M. B., Okyere, H. and Fiebor, A. (2021). Nutritional composition and antioxidant properties of three varieties of carrot (Daucus carota). *Scientific African*, e00801, doi.org/10.1016/j.sciaf.2021.e00801.
25. Boadi, N. O., **Saah, S. A.,** Mensah, M. B. and Awudza, J. A. M. (2020). Aerosol-assisted chemical vapour deposition of lead chalcogenide thin films from [Pb ($(SeP^{i}Pr_2)_2N$)($S_2CNHexMe$)]. *Advances in Materials Science and Engineering*, 2020, doi.org/10.1155/2020/8881921.
26. Boadi, N. O., **Saah, S. A.,** and Awudza, J. A. M. (2020) Synthesis of a novel single-source precursor for the production of lead chalcogenide thin films. *Journal of Chemistry*, 2020.

27. Borquaye, L. S., **Saah, S. A.,** Adu-Poku, D., Adu-Gyamfi, L., Bitian, K. and Bambil, W. (2020). "Anti-inflammatory, antioxidant and total phenolic content of the ethanolic extracts of *Celtis africana* Burm. f." *Current Science Perspectives* 6(3) 43-49.
28. **Saah, S. A.,** Emahi, I. and Sakyi, P. O. (2020). Bioassay of some plants with potential activities against HIV/AIDS and other opportunistic infections. *Current Science Pespective*, 6(3), 50-56.
29. Boadi, N. O., **Saah, S. A.,** Baa-Poku, F., Mensah, E. A. and Addo, M. (2020). Safety of borehole water as an alternative drinking water source. *Scientific African*, 10, e00657.
30. Adu-Poku, D*.,* **Saah, S. A.,** and Agbenorhevi, K. J., (2020). Modeling the Kinetics of Potassium Diffusion in Estima Potato under Different leaching Conditions. *International Journal of Food Science,* Vol 2020, article ID 1876463, 11 pages.
31. **Saah, S. A.,** Boadi, N. O., Wilkins, C. (2019). Deposition of PbS thin films from lead hexadecyl and octadecyl xanthate complexes using the spin coating method. *MRS Advances*, 4(11-12), 733-742.
32. **Saah, S. A.,** Boadi, N. O., Adu-Poku, D. and Wilkins, C. (2019) "Lead ethyl dithiocarbamates: efficient single source precursors to PbS nanocubes". *Royal Society, Open Science*; 6: 190943-190950.
33. Boadi, N. O., **Saah, S. A.,** Helliwell, M. and Awudza, J. A. M., (2019). Hot-injection synthesis of PbE (E= S, Se) nanoparticles from dichalcogenoimidophosphinato lead (II) complexes. *Chemistry Select*, 4(47), 13908-13911.
34. **Saah, S. A.,** Khan, M. D., Awudza, J. A. M., Revaprasadu N. and O'Brien, P. (2019). A facile green synthesis of ultranarrow PbS nanorods. *Journal of Inorganic and Organometallic Polymers and Materials*, 29(6), 2274-2281.
35. Seidu-Makinca, M., **Saah, S. A.,** Boadi, N. O., Badu, M., Mensah, M.B. and Awudza, J. A. M. (2019). Characterization of latices from different rubber

producing plants in the Bobiri forest of Ghana. *Current Science Perspectives*, 5(3), 40-47.

36. **Saah, S. A.,** Khan, M. D., McNaughter, P. D., Awudza, J. A. M., Revaprasadu N. and O'Brien, P. (2018). Facile synthesis of a $PbS_{1-x}Se_x$($0 \leq x \leq 1$) solid solution using *bis* (*N*, *N*-diethyl-N'-naphthoylchalcogenoureato) lead (II) complexes. *New Journal of Chemistry,* 42(20), 16602-16607.
37. **Saah, S. A.,** McNaughter, P. D, Malik, M. A., Awudza, J. A. M., Revaprasadu N. and O'Brien, P. (2018). PbS_xSe_{1-x} thin films from the thermal decomposition of lead (II) dodecylxanthate and *bis*(*N,N*-diethyl-*N'*-naphthoylselenoureato)lead(II) precursors, *Journal of Materials Science*, 53 (6), 4283-4293.

PROFESSIONAL AFFILIATIONS

American Chemical Society, 2022 to present
International Young Chemists Network, 2020 to Present.
Ghana Science Association, 2018-Present.
Royal Society of Chemistry, 2014 to Present.
Ghana Chemical Society, 2006 to Present.

PROFESSIONAL SERVICE

Symposium Co-Organizer
GSMS training workshop, 2015 to date

Peer-Reviewed Articles for:

- Journal of Chemistry
- Journal of Energy and Power Engineering
- American Journal of Nanosciences
- Journal of Energy and Natural Resource Management
- Advanced Journal of Chemistry, Science Publishing Group
- Chemistry Africa, Springer
- Journal of the Ghana Science Association

SERVICE TO UENR

From 2018 when I joined UENR, I have actively contributed my quota to the progress of UENR. For example, I have

- Served as a member to the academic board, school postgraduate committee, school quality assurance committee, laboratory management committee, research committee etc.
- Served as a member of the new programme committee (Biochemistry and Mphil Chemistry).
- Served as a patron to the Ghana Student Chemical Society- UENR Chapter.
- Served as the president of the Ghana Science Association- Sunyani branch.

COMMUNITY SERVICE

Actively contributed to the STEAM festival organized for junior and senior high schools in the Bono region of Ghana, September, 2023

Actively contributed to the science festival organized for junior and senior high schools in the Bono region of Ghana, March, 2019.

25th OWSD Anniversary Ghana Chapter celebration
Organized females in the University of Energy and Natural Resources for the 25th OWSD Anniversary Ghana Chapter celebration at Kwame Nkrumah University of Science and Technology, 8th November, 2018.

Women in Science, Technology, Engineering and Mathematics (WiSTEM)
Organized females in the School of Science at University of Energy and Natural Resources for the launch of WiSTEM Ghana at Kwame Nkrumah University of Science and Technology, 19th October, 2018.

Facilitator for boot camp for girls at Kwame Nkrumah University of Science and Technology, August, 2018.

PROFESSIONAL HANDLES

Google Scholar: https://scholar.google.com/citations?user=3fsnQkMAAAAJ&hl=en&oi=ao

ORCID iD: https://orcid.org/0000-0002-0585-2144

Scopus: https://www.scopus.com/authid/detail.uri?authorId=56574404400

Publons: https://www.webofscience.com/wos/author/record/828366

LANGUAGES

English: Advanced Reader and Writer
Twi: Native Language
French: Intermediate Listener

OTHER SKILLS AND COMPETENCES

I am competent in software such as Microsoft office, Origin, GraphPad Prism, Mercury, image J, X'Pert Highscore, powder X, Chemdraw, Acd labs and Olex. I am also a public speaker and in charge of consultancy work in my department.

HOBBIES

Playing volleyball, listening to music and cooking.

REFERENCES

Prof. Nathaniel Owusu Boadi, PhD
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Kwame Nkrumah University of Science and Technology
PMB, Kumasi
Phone: 00233200122036
Email: noboadi@gmail.com

Prof. Godfred Darko, PhD
Department of Chemistry
Kwame Nkrumah University of Science and Technology
PMB, Kumasi
Phone: 00233545634429
Email: godfreddarko@yahoo.com

Dr. Ismaila Ehahi, PhD
Department of Chemical Sciences
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