Benjamin Anderson

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PROFILE

Laser & Fibre Optics Centre,

Department of Physics,

School of Physical Sciences,

University of Cape Coast,

Cape Coast.

RESEARCH

Interests	Applied Optics: Optical Spectroscopy · Multispectral Imaging · Image Processing and Analysis · Machine Learning
Areas	Analytical Chemistry · Biophysics · Molecular Biology · Insect Science · Plant Science · Biomedical Engineering

RESEARCH SUMMARY

48	321	11	12	0.75	0%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 48 publications listed below, 1995–2026. Field-weighted impact is the mean over the 37 works scored for it; 1.00 is the world average for works of the same field, type and year. 0 of the 37 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Associate Professor
Physics, University of Cape Coast, Cape Coast, Ghana

EDUCATION AND QUALIFICATIONS

PhD 2004–2010
Physics, University of Cape Coast, Cape Coast, Ghana

PUBLICATIONS

Journal articles 39

1. David Dreyer, Meng Li, Hampus Månefjord, Assoumou Saint-Doria Yamoa, Yatana Adolphe Gbogbo, Lauro Müller, Anna Runemark, Benoit Kouassi Kouakou, Rabbi Boateng, Andrew Atiogbe Huzortey, Jérémie T. Zoueu, **Benjamin Anderson**, Mikkel Brydegaard (2026). Robust and diverse multidimensional statistical moments in dual-band entomological lidar for improved real-time insect monitoring. *Journal of Experimental Biology*. https://doi.org/10.1242/jeb.251761
2. Andreas A. Kudom, Martin Bosompem, Michael O. Adu, Benedict Afful, **Benjamin Anderson**, Francis Armah, Paul A. Asare, Joana Ayettey, Ben A. Mensah, Peter Osei-Wusu Adueming (2026). Urban herbicide use threatens a non-target butterfly (Hypolimnas misippus) through direct toxicity and host plant stress in Ghana. *PLOS Ecosystems*. https://doi.org/10.1371/journal.pesy.0000020

3. Jerry Opoku-Ansah, Rabbi Boateng, Charles Lloyd Yeboah Amuah, Peter Osei-Wusu Adueming, Justice Allotey Pappoe, Jonathan Ntow, Kwesi Quagraine, Shemmira Yunus, **Benjamin Anderson**, Moses Jojo Eghan (2025). Identification of Spectral Fingerprints in Different Batches of Antimalarial Herbal Drugs Using Laser-Induced Autofluorescence and Chemometric Techniques. *Journal of Fluorescence*. https://doi.org/10.1007/s10895-025-04192-3

4. Rabbi Boateng, Hampus Månefjord, Jerry Opoku-Ansah, Peter Osei-Wusu Adueming, Andrew Huzortey, Moses Jojo Eghan, **Benjamin Anderson**, Kingsley Taah, Charles Lloyd Yeboah Amuah (2025). Modular 3D-printed biophotonic platform for cost-effective hyperspectral and polarimetric imaging. *Optics Continuum*. https://doi.org/10.1364/optcon.575071

5. Andreas A. Kudom, Philipp Hanke, Joana Ayettey, Rofela Combey, Ben A. Mensah, **Benjamin Anderson**, Andreas Wieser (2025). Molecular identification and knockdown resistance mutation of bed bugs involved in 2019 outbreak in Cape Coast, Ghana and Munich, Germany. *Acta Tropica*. https://doi.org/10.1016/j.actatropica.2025.107623

6. Hampus Månefjord, Assoumou Saint-Doria Yamoa, Yatana Adolphe Gbogbo, Lauro Müller, Anna Runemark, Benoit Kouassi Kouakou, Rabbi Boateng, Andrew Atiogbe Huzortey, Isaac Kwame Badu, Niklas Wahlberg, Mikkel Brydegaard, Jérémie T. Zoueu, **Benjamin Anderson**, Meng Li (2025). Stratification of insect diversity and daily activity patterns in the West African virgin forest Taï assessed by entomological Lidar. *Scientific Reports*. https://doi.org/10.1038/s41598-025-05200-z

7. Hampus Månefjord, A. Andrew Huzortey, Rabbi Boateng, Y. Adolphe Gbogbo, A. S. Doria Yamoa, Jérémie T. Zoueu, Peter K. Kwapong, **Benjamin Anderson**, Mikkel Brydegaard (2024). Hyperspectral lidar for monitoring high-resolution activity patterns of African stingless bee species. *Animal Biotelemetry*. https://doi.org/10.1186/s40317-024-00372-3

8. Peter Osei-Wusu Adueming, Jerry Opoku-Ansah, Andrew Atiogbe Huzortey, Charles Lloyd Yeboah Amuah, Kwasi Nyandey, Moses Jojo Eghan, **Benjamin Anderson**, Samuel Sonko Sackey (2023). A Feasibility Study on Monitoring Shelf Life of Bottled Natural Fruit Juice Using Laser-Induced Autofluorescence. *International Journal of Optics*. https://doi.org/10.1155/2023/7458190

9. Justice Allotey Pappoe, Jerry Opoku-Ansah, Charles Lloyd Yeboah Amuah, Peter Osei-Wusu Adueming, Samuel Sonko Sackey, Rabbi Boateng, Justice Kwaku Addo, Moses Jojo Eghan, Patrick Mensah-Amoah, **Benjamin Anderson** (2023). Automatic Classification of Antimalarial Herbal Drugs Exposed to Ultraviolet Radiation from Unexposed Ones Using Laser-Induced Autofluorescence with Chemometric Techniques. *Journal of Fluorescence*. https://doi.org/10.1007/s10895-023-03281-5

10. Justice Allotey Pappoe, Olivia Mongson, Charles Lloyd Yeboah Amuah, Jerry Opoku-Ansah, Peter Osei-Wusu Adueming, Rabbi Boateng, Moses Jojo Eghan, Samuel Sonko Sackey, Elliot Kwaku Anyidoho, Andrew Atiogbe Huzortey, **Benjamin Anderson**, Michael Kwame Vowotor, Ernest Teye (2023). Classification of Organic and Conventional Cocoa Beans Using Laser-Induced Fluorescence Spectroscopy Combined with Chemometric Techniques. *Journal of Fluorescence*. https://doi.org/10.1007/s10895-023-03499-3

11. Rabbi Boateng, Andrew Atiogbe Huzortey, Yatana Adolphe Gbogbo, Assoumou saint-doria Yamoa, Jérémie T. Zoueu, Mikkel Brydegaard, **Benjamin Anderson**, Hampus Månefjord (2023). Remote Vegetation Diagnostics in Ghana with a Hyperspectral Fluorescence Lidar. *IEEE Journal of Selected Topics in Quantum Electronics*. https://doi.org/10.1109/jstqe.2023.3234022

12. Hampus Månefjord, Meng Li, Christian Brackmann, Nina Reistad, Anna Runemark, Jadranka Rota, **Benjamin Anderson**, Jeremie T. Zoueu, Aboma Merdasa, Mikkel Brydegaard (2022). A biophotonic platform for quantitative analysis in the spatial, spectral, polarimetric, and goniometric domains. *Review of Scientific Instruments*. https://doi.org/10.1063/5.0095133

13. Andrew A. Huzortey, Andreas A. Kudom, Ben A. Mensah, Baah Sefa-Ntiri, **Benjamin Anderson**, Angela Akyea (2022). Water quality assessment in mosquito breeding habitats based on dissolved organic matter and chlorophyll measurements by laser-induced fluorescence spectroscopy. *PLoS ONE*. https://doi.org/10.1371/journal.pone.0252248

14. Andrew Atiogbe Huzortey, Abbas Arefi, **Benjamin Anderson**, Hossein Khadem, Samuel Sonko Sackey, Elaheh Mahmoodi-Khaledi, Seyed Hassan Tavassoli (2021). 532-nm Laser-Excited Raman Spectroscopic Evaluation of Iranian Honey. *Food Analytical Methods*. https://doi.org/10.1007/s12161-021-02164-4

15. Calvin Kwesi Gafrey, Robert Wilson, George Amoako, **Benjamin Anderson** (2021). Laser-induced Fluorescence with Multivariate Analysis in Characterizing Crude Oils from Some Selected Oil Fields in Ghana. *Physical Science International Journal*. https://doi.org/10.9734/psij/2021/v25i630262

16. Robert Wilson, Calvin Kwesi Gafrey, George Amoako, **Benjamin Anderson** (2021). Metallic Composition Analysis of Crude Petroleum from Some Oil Fields in Ghana. *Physical Science International Journal*. https://doi.org/10.9734/psij/2021/v25i530256

17. Calvin Kwesi Gafrey, Robert Wilson, George Amoako, **Benjamin Anderson** (2021). Natural Radionuclide Analysis on Crude Petroleum from Some Oil Fields in Ghana. *Physical Science International Journal*. https://doi.org/10.9734/psij/2021/v25i730271

18. Andrew Atiogbe Huzortey, **Benjamin Anderson**, Alfred Owusu (2021). Raman spectra recovery using a second derivative technique and range independent baseline correction algorithm. *OSA Continuum*. https://doi.org/10.1364/osac.432785

19. B. Sefa-Ntiri, B. Kwakye-Awuah, R. Edziah, **B. Anderson**, F. A. Armah, P. Mensah-Amoah, S. S. Sackey, F. Sam, A. G. Akyea, S. Yunus, E. Tatchie, B. K. Nkansah, F. Kumi (2020). Dissolved organic matter in hand-dug well water as groundwater quality indicator: assessment using laser-induced fluorescence spectroscopy and multivariate statistical techniques. *SN Applied Sciences*. https://doi.org/10.1007/s42452-020-2446-4

20. Peter Osei-Wusu Adueming, Moses Jojo Eghan, **Benjamin Anderson**, Samuel Kyei, Jerry Opoku-Ansah, Charles Lloyd Yeboah Amuah, Charles Darko Takyi, Paul Kingsley Buah-Bassuah (2020). Laser-induced autofluorescence assisted by multivariate techniques discriminates a cataractous lens from healthy lens tissues of Sprague–Dawley rats. *Journal of the Optical Society of America A*. https://doi.org/10.1364/josaa.394555

21. Charles Lloyd Yeboah Amuah, Moses Jojo Eghan, **Benjamin Anderson**, Peter Osei-Wusu Adueming, Jerry Opoku-Ansah, Paul Kingsley Buah-Bassuah (2020). Laser-induced fluorescence combined with multivariate techniques identifies the geographical origin of antimalarial herbal plants. *Journal of the Optical Society of America A*. https://doi.org/10.1364/josaa.396701

22. Jerry Opoku-Ansah, Moses Jojo Eghan, **Benjamin Anderson**, Johnson Nyarko Boampong, Raymond Edziah, Peter Osei-Wusu Adueming, Charles Lloyd Yeboah Amuah (2019). Optical Identification of Plasmodium falciparum Malarial Byproduct for Parasite Density Estimation. *International Journal of Optics*. https://doi.org/10.1155/2019/8782567

23. Shemmira Yunus, Baah Sefa-Ntiri, **Benjamin Anderson**, Francis Kumi, Patrick Mensah-Amoah, Samuel Sonko Sackey (2019). Quantitative Pore Characterization of Polyurethane Foam with Cost-Effective Imaging Tools and Image Analysis: A Proof-Of-Principle Study. *Polymers*. https://doi.org/10.3390/polym11111879

24. Jerry Opoku-Ansah, **Benjamin Anderson**, Moses J. Eghan, Peter Osei-Wusu Adueming, Charles L.Y. Amuah, Samuel S. Sackey (2017). A Retrofitted Metallurgical Microscope Using Light Emitting Diodes for Multi-Spectral Imaging. *Modern Applied Science*. https://doi.org/10.5539/mas.v11n9p30

25. Peter Osei-Wusu Adueming, Moses Jojo Eghan, **Benjamin Anderson**, Samuel Kyei, Jerry Opoku-Ansah, Charles L. Y. Amuah, Samuel Sonko Sackey, Paul Kingsley Buah-Bassuah (2017). Multispectral Imaging in Combination with Multivariate Analysis Discriminates Selenite Induced Cataractous Lenses from Healthy Lenses of Sprague-Dawley Rats. *Open Journal of Biophysics*. https://doi.org/10.4236/ojbiphy.2017.73011

26. Jerry Opoku-Ansah, Moses Jojo Eghan, **Benjamin Anderson**, Johnson Nyarko Boampong, Paul Kingsley Buah-Bassuah (2016). Laser-Induced Autofluorescence Technique for Plasmodium falciparum Parasite Density Estimation. *Applied Physics Research*. https://doi.org/10.5539/apr.v8n2p43

27. **Benjamin Anderson**, Moses Jojo Eghan, Elvis Asare-Bediako, Paul Kingsley Buah-Bassuah (2015). Optical Imaging Method for Determining Symptoms Severity of Cassava Mosaic Disease. *Applied Physics Research*. https://doi.org/10.5539/apr.v7n6p34

28. Jerry Opoku -Ansah, Moses Jojo Eghan, **Benjamin Anderson**, Johnson Nyarko Boampong (2014). Wavelength Markers for Malaria (Plasmodium Falciparum) Infected and Uninfected Red Blood Cells for Ring and Trophozoite Stages. *Applied Physics Research*. https://doi.org/10.5539/apr.v6n2p47

29. **Benjamin Anderson**, J. M. Eghan, Johnson Nyarko Boampong (2013). Automated Protocol for Counting Malaria Parasites (P. falciparum) from Digital Microscopic Image Based on L* a* b* Colour Model and K-Means Clustering. *International Journal of Computer Science and Security (IJCSS)*. https://mail.cscjournals.org/library/manuscriptinfo.php?mc=IJCSS-887

30. Moses Jojo Eghan, **B Anderson** (2012). A simple polarized-based diffused reflectance colour imaging system. *Journal of Ghana Science Association*. https://ghanascience.gov.gh/wp-content/uploads/2018/03/9-3.pdf

31. LK Sam-Amoah, **B Anderson** (2011). Effect of irrigation interval on chlorophyll fluorescence of tomatoes under sprinkler. *Asian Journal of Agricultural Research*. https://doi.org/10.5555/20123220674

32. **Benjamin Anderson**, Moses J Eghan, Elvis Asare-Bediako, Paul K Buah-Bassuah (2011). Violet diode laser-induced chlorophyll fluorescence: a tool for assessing mosaic disease severity in cassava (Manihot esculentaCrantz) cultivars. *Environmental Technology*. https://doi.org/10.1080/09593330.2011.575184

33. **Benjamin Anderson** (2008). Compact fiber-optic fluorosensor employing light-emitting ultraviolet diodes as excitation sources. *Spectrochimica Acta Part B: Atomic Spectroscopy*. https://www.sciencedirect.com/science/article/pii/S0584854707004028

34. M. Bengtsson, S. Wallström, M. Sjöholm, R. Grönlund, **B. Anderson**, A. Larsson, S. Karlsson, S. Kröll, S. Svanberg (2005). Fungus Covered Insulator Materials Studied with Laser-Induced Fluorescence and Principal Component Analysis. *Applied Spectroscopy*. https://doi.org/10.1366/0003702054615214

35. **Benjamin Anderson** (2005). Studies of gas exchange in fruits using laser spectroscopic techniques. *Proceedings of Fruitic05 Symposium (Montpellier, France*. https://www.researchgate.net/profile/Benjamin-Anderson-6/publication/267703643_Studies_of_Gas_Exchange_in_Fruits_Using_Laser_Spectroscopic_Techniques/links/56840a8e08aebccc4e0fda76/Studies-of-Gas-Exchange-in-Fruits-Using-Laser-Spectroscopic-Techniques.pdf

36. **Paul Buah-Bassuah and J. P. Tetteh Benjamin Anderson** (2004). Using Laser – Induced chlorophyll fluorescence emission spectra for crop yield assessment of cowpea varieties. *Measurement Science Technology*.

37. **Benjamin Anderson**, Paul K Buah-Bassuah, Jonathan P Tetteh (2004). Using violet laser-induced chlorophyll fluorescence emission spectra for crop yield assessment of cowpea (Vigna unguiculata (L) Walp) varieties. *Measurement Science and Technology*. https://doi.org/10.1088/0957-0233/15/7/005

38. **Benjamin Anderson** (2003). Laser spectroscopy of free molecular oxygen dispersed in wood materials. *Appl. Phys. B*. https://doi.org/10.1007/s00340-003-1299-z

39. **Benjamin Anderson** (1995). Bioremediation study of spilled crude oil on Fowler Beach, Delaware. *International Oil Spill Conference Proceedings*. https://iosc.kglmeridian.com/view/journals/iosc/1995/1/article-p889.xml

Conference papers 8

1. Rabbi Boateng, Andrew A. Huzortey, Adolphe Y. Gbogbo, Doria A. S. Yamoa, Jérémie T. Zoueu, Mikkel Brydegaard, Hampus Månefjord, **Benjamin Anderson** (2023). Mapping of Algae on Walls with a 3D Printed Hyperspectral Fluorescence Lidar. *Frontiers in Optics + Laser Science 2023 (FiO, LS)*. https://doi.org/10.1364/fio.2023.jm7a.76

2. Andrew Atiogbe Huzortey, **Benjamin Anderson**, Jonathan Ntow, Samuel Sonko Sackey, Rofela Combey, Joseph Kwasi Adu, Charles Lloyd Yeboah Amuah, Peter Kofi Kwapong, Alfred Owusu (2022). 445 nm Laser-Induced Fluorescence monitoring of 5-Hydroxymethylfurfural in Honey. *Conference on Lasers and Electro-Optics*. https://doi.org/10.1364/cleo_at.2022.am2m.5

3. Andrew Atiogbe Huzortey, **Benjamin Anderson**, Alfred Owusu (2017). A Composite Algorithm for Optimized Baseline Correction in Raman Spectroscopy. https://doi.org/10.1364/fio.2017.fm3c.2

4. C L Y Amuah, J M Eghan, **B Anderson**, P Osei Wusu Adueming, J Opoku-Ansah (2017). Laser Induced Fluorescence in combination with Multivariate analysis classifies anti-malarial herbal plants. https://doi.org/10.1364/fio.2017.jtu2a.71

5. Andrew Atiogbe Huzortey, **Benjamin Anderson**, Alfred Owusu (2016). Designed and Developed Low Cost Raman Spectroscopic System. https://doi.org/10.1364/fio.2016.jth2a.95
6. M. Bengtsson, S. Wallstrom, R. Gronlund, **B. Anderson**, M. Sjoholma, A. Larsson, S. Kroll, S. Svanberg (2006). Development of a tool for remote detection of fungi and algae on electrical insulators using laser induced fluorescence combined with principal component analysis. https://doi.org/10.1109/cleoe.2005.1568250
7. **Benjamin Anderson** (2004). Monitoring the growth of cowpea (Vigna unguiculata(L)- Walp) varieties with violet diode Laser. *OWLS8*, *Melbourne*, *Australia*.
8. **Benjamin Anderson** (2003). Gas transport in wood assessed by laser spectroscopy. *2003 Conference on Lasers and Electro-Optics Europe (CLEO/Europe 2003)(IEEE Cat. No. 03TH8666)*. https://ieeexplore.ieee.org/abstract/document/1313567/

Theses 1

1. **Benjamin Anderson** (2010). Diode laser spectroscopic studies of biological materials using absorption and emission techniques. *University of Cape Coast*. https://ir.ucc.edu.gh/server/api/core/bitstreams/6a9e7d63-a252-45a9-8f0d-f72925ba076f/content