



DEPARTMENT OF PHYSICS

Dr. Venkateswara Penugonda, BSc, MSc, MPhil, PhD – Head of Department

OVERVIEW

In the academic year of 2022–2023, the Department of Physics continued its tradition of excellence with numerous accolades. Amongst these were three international recognitions; one Fulbright Scholarship and two National Medal awards. Additionally, the Department also garnered eleven Principal's Research awards, and three FST Mona Administrative and Technical and Service staff Unsung Hero awards. The Department also celebrated the achievements of its students as 37 undergraduate majors/minor awarded; in addition to one PhD, one MPhil and four MScs. The Department presented its action plan and implementation progress at the Academic Board on June 17, 2023 in follow up to the Quality Assurance Review facilitated on March 8–12, 2021. Two new free-elective courses Fundamentals of Energy Statistics (PHYS2000) and Energy Information Management (PHYS3000) were offered. The newly approved Master of Science in Clinical Medical Physics is a joint programme between the Faculties of Science and Technology, Medical Sciences and the Ministry of Health and Wellness (MoHW). The programme is slated to commence in January 2024. To recognize the achievements of students who are excelling in their respective undergraduate Physics majors, two Physics Honour Society events were held during the year and resulted in seventeen students receiving invitations for membership in Semester 1 whilst ten were invited in Semester 2. Finally in terms of research, there were 9 Research articles, 2 Book chapters, 4 Conference abstracts and a grantsmanship of US \$188,449.76 + £25,000.00.

AWARD OF DEGREES

The University of the West Indies, Mona graduation was held on November 4, 2022. Thirty-seven students were awarded majors/minors in Physics sub-disciplines and 4 students graduated with First Class Honours. Four M.Sc. students; one M.Phil and one Ph.D. were also among the graduands.

Total Undergraduate Student Registration

Academic Year	Semester 1				Semester 2			
	2021-2022	Female	2022-2023	Female	2021-2022	Female	2022-2023	Female
Preliminary	64	33	55	30	41	20	43	28
Introductory	61	25	39	22	71	29	90	37
Year 2	110	49	109	49	45	17	37	11
Year 3	37	17	33	14	62	25	87	32
Totals	272	124	236	115	219	91	257	108

Undergraduate Students/Recognition Awards

Recipients of undergraduate departmental awards for the Academic Year 2022–2023 are:

The Professor John Lodenquai Prize for Introductory to Physics	Adam Ross Taylor
Level II Physics Bursaries	Janielle McKoy and Afia Bromfield
Michael Tharmanathan Physics Bursary	Krystin Henry
Dr. M.J. Ponnambalam Prize	Wills Small
Physics Honours Society Award	Oshia Gaynor and Toni-Ann Hendricks
Charlton Foundation Award	Shari Oliver

OUTREACH AND IN-REACH ACTIVITIES

- The Department embarked on a series of CAPE Physics Workshop, which commenced on January 6, 2023 in the Western Campus where a total 43 students participated. The Workshop continued on The UWI, Mona Campus on January 9–13, 2023; approximately 267 students participated virtually. At total of 403 students respectively participated in two separate in-person lab components held on January 20, 24, 26 and 27, 2023 and February 14–17, 2023. Lectures and Demonstrations were supported by staff members Dudley Williams, Rochelle Walters, Karlus Redway, Candice Charlton, Rickardo Anderson; Chantal Simmonds and Alexandra De Freitas; postgraduate students Lanceford Sterling, Andre McGlashan, Dawin Morna, and Terick Simpson; with the assistance of Wills Small, Toniann Hendricks, Rodane Samuels and Orane Green (Undergraduate Students).
- The Outreach Team endorsed World Space Week from October 4–10, 2022. Space Week is an annual international celebration of space science and technology that contributes to the betterment of humanity. Data and images to support

this initiative were displayed at the Physics Undercroft. Mr. Karlus Redway, Astrophysicist facilitated a brief interview to share further insights on the discipline. The different social media platforms were also updated for viewing.

- Ms. Candice Charlton gave a presentation on weather and climate change at the Lister Mair/Gilby High School for the Deaf, Papine, Saint Andrew on October 24, 2022. Ms. T. Taylor, Grade 8 Science teacher, requested a presentation for her students who were currently covering topics related to weather and climate change. The presentation was well received and students craved future visits for other topics.
- Mr. Jovante Anderson, Guild Committee Physics Representative arranged an International Centre for Environmental and Nuclear Sciences (ICENS) tour for the twenty-five Physics students on November 29, 2022. Professor Charles Grant, ICENS Director General and his team facilitated the tour.
- Mr Sanchez Palmer (PhD Student/Assistant Lecturer-Medical Physics Programme) facilitated a tour of the Radiotherapy Department at St. Joseph's Hospital on March 23, 2023 to twelve Undergraduate Medical Physics students. Mr. Palmer guided the tour by ensuring that all logistics were adhered to and aimed specifically to expose students to the reality of their aspiring field by incorporating the applications of physics, in radiation. The students overall review was that tour was incredible and they were quite impressed by the use of all physics concepts.
- The Department of Physics was represented by members of staff, Undergraduate Student volunteers and the Outreach Team at the Faculty of Science and Technology's Science Festival 2023 on Friday, March 31, 2023 and April 1, 2023. Students were engaged in a wide range of activities such as Live Demonstrations, Interactive Displays, Meeting Local Scientist, A micro-talk of Science as well as games, entertainment and surprises and much more.
- The Department of Physics, Faculty of Science and Technology, UWI Mona in collaboration with the Astronomical Association of Jamaica hosted a 'Night with the Stars' event on May 5, 2023. Local expert astronomers gave enthusiasts an opportunity to delve into the realm of the extraterrestrial to explore the surface of celestial bodies through telescopes. The nightlong event was skillfully decorated to encapsulate the theme, compacted with music, refreshments and engaging activities to keep all entertained. Sponsorship was also provided by J. Wray and Nephew.
- The Department of Physics welcomed three students into its summer internship program. The students, Toni Ann Hendricks (Energy and Environmental Physics – Final Year), Nathan Gordon (Electronics and Computer Science – Year 1) and Adam Taylor (Computer Science and General Physics – Year 2), have embarked on this enriching journey that spans from June to mid-August.

During the program, the students have been actively involved in a multitude of research and development tasks. The goal of these activities is to provide practical experience and exposure pertinent to each student's field of study.

- The Jamaica Cancer Society's Relay for Life 2023 in collaboration with The Faculty of Science and Technology held a fund raising event on June 10-11, 2023. The focus of awareness, was breast cancer and in light of the passing of Dr. Phylicia Ricketts a special tribute was held in her honour.
- The Department of Physics hosted a group of 14 students and 4 coaches from the Liguanea Chess Club's Summer Camp on July 27, 2023. The tour focused on demonstrating experiments that are based on concepts related to optics, mechanics, fluid dynamics, and measurements. The group was also given a short presentation and demonstration of 3D printing, and was able to interact with electronics equipment that is part of an ongoing project. The tour was led by Dr. Louis-Ray Harris with the assistance of Ms. Alexandra De Freitas (Postgraduate Student), Mr. Kevaughn Williams, and Ms. Shalise Petrie (Undergraduate Students).
- Professor Vashan Wright, Assistant Professor of Geophysics and Granular Physics at Scripps Institute of Oceanography at The University of California San Diego visited the Department on July 5, 2023. Prof. Wright made a presentation to Undergraduate and Postgraduate students on an upcoming graduate school and internship opportunities in Geophysics and Soft-matter/Statistical Physics with the Scripps Institute.

SPECIAL PROJECTS AND SEMINARS

- Professor Michael Taylor was invited to participate in the high-level "Seminar on Building a Science and Data-based Agenda for Decision-making on Resilience in the Caribbean" held October 20–21, 2022 in the Commonwealth of Dominica. The conference was organized by the Organization of American States (OAS) and other international partners. Professor Taylor gave the opening presentation, which examined Climate Vulnerability to Climate Resilience: Essentials for Sound Decision Making.
- The Physics Departments of The University of the West Indies, Mona in collaboration with the St. Augustine Campus observed the International Day of Medical Physics on November 24, 2022. Dr. Phylicia Ricketts was invited to give a lecture on the, "Education Pathways in becoming a qualified Medical Physicist".
- The Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) in partnership with The University of the West Indies hosted the "Regional EV-Lution III" on November 25 on the Mona Campus under the theme "Our

Transportation Future is Electric”. The expo was a public and private sector partnership and aimed to increase awareness on electric vehicle (EV) technology. Increased interaction with the EVs (e.g. through test drives) was enabled. The University commissioned a charging station courtesy of Flash Motors. A university session was facilitated that was chaired by Prof. Tannecia Stephenson and included presentations from university representatives including Dr. Louis-Ray Harris; Santana Lewis (postgraduate student), Paul-Junior Brown and Lorenzo Lewin (undergraduate students) who are supervised by Dr. Randy Koon Koon. Prof. T. Stephenson and Dr. R. Koon Koon were members of the Planning Committee.

- Prof. Massimiliano Galeazzi-Physics Department Chair, MasonKlein-Admissions Committee Chair; and Annie Sebro-Graduate Program Administrator, from The University of Miami, delivered a virtual session on November 22, 2022, on the different internal research areas and positions available within the University.
- Professors Tannecia Stephenson and Michael Taylor were online participants in the 12th Caribbean Conference on Comprehensive Disaster Management (CDM) held in hybrid mode December 7–9, 2022. On December 7, 2022 Prof. Stephenson delivered one of the keynote addresses using the theme: A Risk-Based Approach to Managing Multiple Risks in Caribbean SIDS and LLCs. On December 7, 2022 Professors Stephenson and Taylor also participated in the Launch of the Lancet Countdown on Health and Climate Change Regional Centre for Small Island Developing States. Prof. Stephenson presented on Current and Projected Climate Change Trends in SIDS: A Climate Science Perspective. Prof. Stephenson presented on Climate Change: The Together Experience in an online forum hosted by the Society for Scientific Advancement (SOSA) on December 8, 2022.
- Candice Charlton virtually attended the Commonwealth Science Caribbean (CSC) Conference follow-up meeting on February 9, 2023. The aim of the conference was to build on and strengthen the scientific ties and networks that were formed at the CSC, to provide more opportunities to continue discussions on the thematic areas and critical global challenges explored, and to equip delegates with the tools and experience required to bring their research findings to the heart of policy making.
- Mr. Dominic Chang gave a presentation in the Department entitled “Bayesian Forward Modelling of Supermassive Blackhole”. Mr. Chang, a past student in the Department is currently pursuing his PhD at Harvard University; Mr. Chang is an expert in the field of astrophysics, with a particular focus on the study of black holes.

- Under the United Nations Environment Programme (UNEP) CityAdapt Project, Dr. Jayaka Campbell, member of a team of consultants and subject matter experts that presented on Climate and Climate Change for the Hope River Watershed Management Unit. The Project called for a Rapid Ecological Assessment and Socio-economic Survey of the Hope River Watershed Management Unit. The session was held virtually Friday 3rd March 2023.
- Dr Jayaka Campbell, Dudley Williams (Graduate student) and Toni Ann Hendricks (Undergraduate student) is undertaking work with the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) to produce an energy Dossier for Jamaica on behalf of the Inter-American Development Bank. The energy dossier is a report that collects detailed energy sector data for Jamaica. The kick-off meeting for the project was held on the 30th of May, 2023.
- Dr. Jayaka Campbell was invited to present at the 2023 Caribbean Regional Outlook Forecast Meeting held at the Jamaica Pegasus Hotel on May 24, 2023 entitled “Preparing Caribbean Sectors for Future Climate Challenges”. Insights into monthly activities, and highlighted initiatives were addressed as well as the challenges for the need to enhance resilience in the agriculture, water resources, disaster management, and tourism sectors. The latest climate data, forecasts, and trends, was shared enable an informed approach for decision-making. The event facilitated discussions, sharing of experiences and exploration of innovative solutions. Successful initiatives and best practices were showcased and areas for improvement were identified. Overall, the presentation served as a significant step towards fostering resilience and sustainable development in the Caribbean amidst climate change impacts. Attendees included climate experts, policymakers, and stakeholders from various sectors including health, water and disaster planners who were the focus of this year’s meeting.
- The Climate Studies Group Mona (CSGM) has been commissioned to assist the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE). Their collaborative effort is focused on the creation of a Caribbean Regional Energy Integration and Decarbonization Assessment. The overarching goal of this project is to enhance energy security within the Caribbean region. The consultancy is valued at USD29,600.
- The Climate Studies Group Mona (CSGM) has been commissioned to assist the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE). Their collaborative effort is now focused on the preparation of an energy dossier for Jamaica. The overarching goal of this undertaking is to enhance the understanding of Jamaica’s energy landscape and to assist in strategic planning for its future energy needs. The consultancy is valued at USD 6,880.00.
- The Climate Studies Group successful hosted representatives from the Instituto de Meteorología de Cuba and the University of Tennes-

see-Knoxville, from July 3, 2023 to July 14, 2023. Their visit provided a unique platform for collaboration aimed at addressing the significant and pressing climate issues affecting the Caribbean region. One primary collaborative objective is to strengthen cooperative efforts in climate research and generate fresh ideas for a sustainable Caribbean future. Researchers from Cuba were Dr. Abel Centella, Dr. Arnoldo Bezanilla and Dr. Maibys Sierra Lorenzo whilst Dr. Dimitris A. Herrera represented the University of Tennessee-Knoxville.

STAFF RECOGNITION AND STUDENT AWARDS

- Mr. Alton Daley was awarded a Fulbright scholarship to pursue his Doctoral Degree in the United States. Mr. Daley had obtained a Bachelor of Science in Energy and Environmental Physics and a Master of Philosophy in Applied Physics from The University of the West Indies.
- Professors A. Anthony Chen and Michael Taylor were nominated and short-listed for National Medal for the Science and Technology. On November 14, 2022, The Most Honourable Prime Minister Andrew Holness presented the Certificate of Recognition to Professor Taylor for his outstanding contribution to Scientific and Technological Research in the Field of Climatology in Jamaica. A Certificate of Recognition was also prepared for Prof. A. Anthony Chen.
- Mrs. Rochelle Walters (Technical Staff) and Mrs. Joy Davis (Service Staff) were recipients of awards for their hard work and dedication under the theme “Unsung Hero” at the Faculty of Science and Technology’s Technical and Service Staff Appreciation Day held November 24, 2022.
- Janielle McKoy (Undergraduate Student) participated in the International Huawei Seeds for the Future program (SFTF). The SFTF2023 cohort was selected from: Trinidad & Tobago, Peru, Suriname, Jamaica, Slovenia and China. Ms. McKoy also completed a weeklong (November 7–14, 2022) training session on 5G, Artificial Intelligence, Cloud Computing and Digital Power and was selected among the top 10 performers nationally. Ms. McKoy was rewarded with a trip to Panama from January 13–18, 2023 for a leadership to participate in a cultural exchange of activities along with other top performers.
- Deron Maitland (Postgraduate Student) departed the island on January 25, 2023 for a 5–6 month visit to the University of Bergen (UiB), Norway as an Erasmus + International Credit Mobility student. Mr. Maitland is expected to engage a Master’s level course titled “Data Analysis in Earth Sciences” in the Faculty of Mathematics and Natural Sciences, UiB and also to conduct research on Caribbean Sea level change at the Bjerknes Centre for Climate Research (BCCR), UiB, Norway. This is made possible by the MOU between the UWI and UiB.

- Ms. Leonie Stull (Administrative Staff) was the recipient of an award under the theme “Unsung Hero” at the Faculty of Science and Technology’s Administrative and Professionals Appreciation Day on April 26, 2023.
- Ms. Candice Charlton was accepted on May 4, 2023, to do a poster presentation on her paper titled “Evaluating skill of the Keetch–Byram Drought Index, Vapour Pressure Deficit and Water Potential for determining bushfire potential in Jamaica” at the World Climate Research Program (WCRP) Open Science Conference 2023: Advancing Climate Science for a Sustainable Future, Early-to-mid-Career Researcher (EMCR) Symposium to be held in Kigali, Rwanda from October 22–28, 2023.
- The Principal’s Research Awards Ceremony was held on July 26, 2023. Recipients for the three-year period 2020–2023 were acknowledged as follows:

Year 2020:

- Prof. Michael Taylor and Prof. Tannecia Stephenson – Best Research Publication for the paper entitled “Caribbean Climate Change Vulnerability: Lessons from an Aggregate Index Approach”.
- Dr. Tanya Kerr – Best Research Publication for her paper entitled “The use of Raman spectroscopy to monitor phase changes in concrete following high temperature exposure”.
- Prof. Mitko Voutchkov and Dr. Da-Vaugh Sanderson – Best Research Publication for the paper entitled “Bioaccumulation of cadmium in potato tuber grown on naturally high levels cadmium soils in Jamaica”.
- Dr. Venkateswara Penugonda – Most Outstanding Researcher for 5 publications produced during 2018/2019.
- The Climate Studies Group Mona – Research Project Attracting the Most Research Funds for its project “Resilience Strengthening to Climate Change Impacts through Youth Education in Primary Schools”.
- Dr. Andre Coy and Dr. Penugonda received one of the awards for Research Project with the Greatest Multidisciplinary/Cross-Faculty Collaboration for the project “A Review of a Tertiary Level Institution’s Initiative for Enhancing Education in STEM at the Secondary School Level”.

Year 2021:

- Dr. Andre Coy – Best Research Publication for his paper entitled “Improving the Estimation of Fractional Vegetation Cover from UAV RGB Imagery by Colour Unmixing”.
- Dr. Venkateswara Penugonda – Most Outstanding Researcher for the 6 publications produced during 2019/2020.

- The Climate Studies Group Mona – Research Project Attracting the Most Research Funds for project “State of the Caribbean Climate”.

Year 2022:

- The Climate Studies Group Mona – Research Project with the Greatest Impact on Policy for its project “Risk/Vulnerability Assessments and Preparation of Climate Change Adaptation Strategies/Plans for Five Priority Sectors”.

Year 2023:

Professor A. Anthony Chen, Dr. Randy Koon Koon and Mrs. Khatiza Mohammed-Koon Koon – Best Research Publication for paper entitled “A Monte Carlo based approach to the resource assessment of Jamaica’s geothermal energy potential”.

STAFF CHANGES

- Dr. Leary Myers retired on September 30, 2022 as a Senior Lecturer in the Department of Physics. Dr. Myers joined The UWI family in 1993 and has an extensive teaching and research record and further made significant contribution to the University as chair of a number of committees. Dr. Myers was awarded for over 15 years of continuous service to the University.
- Mr. Jeremy Lothian resigned his position as Driver and also Mr. Andre Gordon resigned his position as Senior Scientific Officer as at January 2023.
- Dr. Randy Koon Koon resigned his position as lecturer, which took effect on July 31, 2023.

INFRASTRUCTURE UPGRADES

Annual Pre-Labour Day activities were held on Friday, May 19, 2023. The projects that were undertaken were the remarking of curb walls in the Physics Parking Areas, clearing, cleaning, storing and depositing of items in the Electronics Laboratory and a few landscaping activities which included repacking potted plants and pruning a few plants within the department.

PASSING

The Physics Family acknowledges the passing of our dear colleagues and extend sincere condolences to their bereaved families:

- Mrs. Beverley Hurlock Cox, who passed away on September 6, 2022. Mrs. Hurlock-Cox was initially employed as Cleaner on June 26, 1989 at the Faculty of Medical Sciences in the Department of Advance Nursing Education. She

was transferred to the Department of Physics on January 1, 1998 where she occupied the position of Departmental Attendant II. On August 1, 2016, Mrs. Hurlock-Cox was promoted to the position of Laboratory Attendant I and worked in this position until her untimely death. In 2014, she was the recipient of a UWI long service award for 21 years.

- Dr. Phylcia Ricketts, who sadly passed on February 24, 2023. Dr. Ricketts is a graduate from The UWI, Mona Campus in 2011 with a Medical Physics BSc. and holds a PhD in Applied Physics in 2017. Dr. Phylcia has been serving the Department as a Lecturer since August 2018 and was a recipient of the 2018 Prime Minister's Youth Award for Excellence in Innovation Science and Technology. Dr. Ricketts was one of nine awardees in the Scientific Research Council's (SRC), Science and Technology XXtrordineers Jamaican women in 2022.
- Dr. Victor Emanuel Douse, a retired member of staff who sadly passed away on April 30, 2023. Dr. Victor Douse joined the Faculty of Science and Technology on June 1, 2000 where he diligently served the Department of Physics for twenty (21) years until his retirement in July 2021. Dr. Victor Douse who was a recipient of The UWI Long Service Award for 15 years of service to The UWI. During his tenure, he served in various roles – Demonstrator, Teaching Assistant, Assistant Lecturer and Lecturer. Dr. Douse served as Chair or Vice Chair on three local committees, including the National Aggregates Technical Committee, the National Building and Associated Materials Technical Committee and National Cement Technical Committee.

PUBLICATIONS

Articles

- Jie Chen, Wenhao Fan, Yachao Wang, Yu Jiang, Saneyuki Ohno, Zuhair A. Munir, **Marhoun Ferhat** Shaoping Chen "Improvement of Stability in a Mg₂Si-based Thermoelectric Single-Leg Device via Mg₅₀Si₁₅Ni₅₀ Barrier" *Journal of Alloys and Compounds*, August 2022, DOI: 10.1016/j.jallcom.2022.166888 **IF: 6.371**
- Morales-Aragonés JI, **Williams MSM**, Gómez VA, Gallardo-Saavedra S, Redondo-Plaza A, Fernández-Martínez D, Sánchez-Pacheco FJ, Cuadro JGF, Hernández-Callejo L. A Resonant Ring Topology Approach to Power Line Communication Systems within Photovoltaic Plants. *Applied Sciences*. 2022; 12(16):7973. <https://doi.org/10.3390/app12167973> **IF: 2.838**
- **Charlton, C.; Stephenson, T.; Taylor, M.A.; Campbell, J.** Evaluating Skill of the Keetch–Byram Drought Index, Vapour Pressure Deficit and Water Potential for Determining Bushfire Potential in Jamaica. *Atmosphere* 2022, 13, 1267. <https://doi.org/10.3390/atmos13081267> **IF: 3.110**

- A.Pranav Kumar, S. Hima Bindu, **P. Venkateswara Rao**, K. Naveenkumar; M. Mohan Babu, T. Satyanarayana, M. Sroda, P.Syam Prasad “Structural investigations of borate incorporated germanium antimonate glasses” *Results in Chemistry*, Volume 4, January 2022, 100449, ISSN: 2211-7156 <https://doi.org/10.1016/j.rechem.2022.100449> **IF: 2.3**
- Patricia S. Silva, Joao L. Geirinhas, Remy Lapere, Wil Laura, Domingo Cassain, Andras Alegra, **Jayaka Campbell** (2022). Heatwaves and fire in Pantanal: Historical and future perspectives from CORDEX-CORE, *Journal of Environmental Management*, Volume 323, <https://doi.org/10.1016/j.jenvman.2022.116193>
- **Stephenson, T.S., M.A. Taylor**, A.R. Trotman, **C. Charlton**, T. Allen, **L.A. Clarke**, J.M. Spence, **J.D. Campbell**, K. Kerr and C.J. Van Meerbeeck 2021: [Regional Climates] Caribbean [in State of the Climate in 2021]. *Bull. Amer. Meteor. Soc.* **103** (8), S369–S370, https://doi.org/10.1175/2022BAMSStateoftheClimate_Chapter7.1
- Gullino, M.L.; Albajes, R.; Al-Jboory, I.; Angelotti, F.; Chakraborty, S.; Garrett, K.A.; Hurley, B.P.; Juroszek, P.; Lopian, R.; Makkouk, K.; Pan, X.; Pugliese, M. and **T. Stephenson** (2022). Climate Change and Pathways Used by Pests as Challenges to Plant Health in Agriculture and Forestry. *Sustainability*, *14*, 12421. <https://doi.org/10.3390/su141912421>
- Morales-Aragones JI, **Williams MSM**, Kupolati H, Alonso-Gómez V, Gallardo-Saavedra S, Redondo-Plaza A, Muñoz-García MÁ, Sánchez-Pacheco FJ, Hernández-Callejo L. A Power-Line Communication System Governed by Loop Resonance for Photovoltaic Plant Monitoring. *Sensors*. 2022; *22*(23):9207. **Impact Factor: 3.847**
- **Deron O. Maitland**, Michael A. Taylor and Tannecia S. Stephenson, “Investigation of Multi-Timescale Sea Level Variability near Jamaica in the Caribbean Using Satellite Altimetry Records” *J. Mar. Sci. Eng.* 2023, *11*(8), 1499; <https://doi.org/10.3390/jmse11081499>

Book Chapter

- **A. Coy. (2022)**. Barriers to Technology-enabled Education for the Deaf in the Caribbean. In S. N. J. Blackman (Ed.). *Equitable Education for Marginalized Youth in Latin America and the Caribbean*. New York: Routledge.
- **Taylor, Michael, 2022**: Sea-level Rise and Small Islands. In *The Climate Book*. Created by Greta Thunberg. Penguin Random House, UK. ISBN 978-0-241-54747-2.

CONFERENCE ABSTRACTS

- **Craig Rattray**, Kert Edward and **Marhoun Ferhat** “Development of a Simple Automated Image-based Sun Position Tracking Algorithm” The Frontiers of Research in Caribbean Science and Technology (FORECAST) Conference 2022: “Science & Technology: a D.R.I.V.E.R. of transformation”. Kingston, Jamaica, August 2022
- **Dudley Williams, Theodore Wynter, Jayaka Campbell, Tannecia Stephenson, Marhoun Ferhat** “nearing a tipping point: heat-stress and small scale poultry farming in Jamaica” The Frontiers of Research in Caribbean Science and Technology (FORECAST) Conference 2022: “Science & Technology: a D.R.I.V.E.R. of transformation”. Kingston, Jamaica, August 2022
- **Mr. Andre McGlashan, Dr. Venkateswara Penugonda**, Dr. Peter Nelson “Physical, thermal, optical, shielding and elastic moduli parameters of Bi₂O₃-B₂O₃-TeO₂ glass system doped with Fe₂O₃” The Frontiers of Research in Caribbean Science and Technology (FORECAST) Conference 2022: “Science & Technology: a D.R.I.V.E.R. of transformation”. Kingston, Jamaica, August 2022
- P.S. Mohammed, **A.Coy**, P. Skerrit, Y. Lewis-Fokum, A. Mohammed, A. Hosein. The Importance of Culturally-Situated Design on Children’s Interaction with Speech-Enabled Features in an Online Spelling Tutor. In Proceedings 24th International Conference on Human-Computer Interaction (HCII2022), 2022.

PUBLIC SERVICE

Dr. Andre Coy

- Convener, Physics Panel for Caribbean Examination Council; Reviewer Journals, IEEE Transactions on Audio, Speech and Language Processing, Computer Speech and Language, Instrumentation Science & Technology; Member IEEE Signal Processing Society;
- Member IEEE Communications Society;
- Member STEM Integration Committee – Ministry of Education; Advisor to the Ministry of Education – Core Curriculum Unit.

Dr. Marhoun Ferhat

- Member of the Jamaica Energy Council (JEC) and UWI mona representative.

Dr. Louis-Ray Harris

- Board of Directors for the Spectrum Management Authority Limited

Dr. Tanya Kerr

- Member of the International Association of Fire Safety Science (IAFSS)

Dr. Venkateswara Penugonda

- Editorial Board Member for the Journal of Engineering Publication House;
- Life member in Luminescence Society of India (LSI);
- Editorial Board Member for the SCIREA Journal of Materials;
- Member in Caribbean Academy of Sciences, Jamaica (CASJ);
- Reviewer Journals: 1. *Applied Physics A*, 2. *Spectroscopy Letters*, 3. *Materials Science – Poland*, 4. *Journal of Alloys and Compounds*, 5. *Journal of Molecular Liquids*, 6. *Journal of Radiation Research & Applied Sciences*, 7. *Ionics*, 8. *Journal of Non-Crystalline Solids*, 9. *Journal of Physics & Chemistry of Solids*, 10. *Radiation Physics and Chemistry*, 11. *Optical Materials*, 12. *Journal of Industrial Textiles*, 13. *Journal of Results in Physics*

Professor Tannecia Stephenson

- Member, WCRP Climate and Ocean – Variability, Predictability and Change (CLIVAR) Atlantic Region Panel, 2021–2023;
- Point of Contact for CORDEX- Central America;
- Member, Steering Committee, Pilot programme for Climate Resilience.

Professor Michael Taylor

- Member, Board, International Centre for Environmental and Nuclear Science (ICENS); Member, Board, Scientific Research Council (SRC);
- Member, Jamaica, National Educational Transformation Commission; Representative for Jamaica to the Inter American Institute for Global Change;
- Member, Climate Change Advisory Board, Ministry of Economic Growth and Job Creation. Member, Steering Committee, Pilot Programme for Climate Resilience (Caribbean);
- Reviewer Journals: *Journal of Geophysical Research*, *International Journal of Climatology*, *Journal of Climate*, *Climate Dynamics*, *Theoretical and Applied Climatology*, *Tellus A*.
- Member, Jamaica’s High-Level Education Transformation Commission.

Dr. Jayaka Campbell

- Steering Committee Member of Global Science Partnership for Net Zero and Jamaica Representative.

GRANTS

- Dr. Andre Coy and his collaborators received US\$50,000.00 grant for the Futures Forum on Learning: Tools Competition, Bridging Reading Instruction Gaps through The use of a Speech Technology-enabled Autonomous Reading Tutor (BRIGHT START). The duration of the project is 2 years, starting from August 2022.
- Dr. Randy Koon Koon in collaboration with research colleagues from the University of Belfast submitted a research grant proposal to the Global Challenges Research Fund Networking Grants scheme with the proposal entitled, “CariGeo – Supporting Direct-Use Geothermal Energy Application across the Caribbean.” The grant under request is approximately £25,000.00
- Dr. Andre Coy was awarded research credits from Amazon Web Services (AWS) for a pilot of the BRIGHT START project. The research credits allow for use of AWS computing and storage for the duration of the trial. The amount of the award is USD 11,969.76.
- E-learning Jamaica had provided an equipment grant to Dr. Andre Coy. The grant covers the provision of 600 tablets for use by students in a pilot of the JUMPSTART literacy tutor project. The value of the grant is USD90,000.