

CARIBBEAN ACADEMY OF SCIENCES

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UPDATES

- CAS HOSTED ITS 22ND BIENNIAL CONFERENCE, VIRTUALLY.
- UNESCO IN COLLABORATION WITH CAS TO HOST REGIONAL STI DIALOGUE.

“Radio frequency identification (RFID) is a wireless technology that allows for automated remote identification of objects, animal or person.”

RFID Technology and its Application in Industry

Authors: Tracy Aleong and Kit Fai Pun
The University of the West Indies, St. Augustine, Trinidad and Tobago

Abstract:

Radio frequency identification (RFID) technology transmits data wirelessly and falls under the broad classification of automatic identification and data capture (AIDC). The advances in the technology continue for various tracking and monitoring type applications. This article explores the use of REID tags operating in the ultra-high frequency (UHF) band in industries. It sheds lights on utilising UHF RFID sensor tagging solutions for process measurement data acquisition.

Authors' Biographical Notes:

Tracy Aleong holds a B.A.Sc. in Electrical Engineering and an MBA specialised in Innovation and Leadership. She is currently pursuing an MPhil in Industrial Engineering at The University of the West Indies (UWI), Trinidad and Tobago (T&T). Her research interests include smart instrumentation technology, mass local manufacturing and graphical designs.
(Email: tracy.aleong1@gmail.com)

Kit Fai Pun is presently the President of the CAS Trinidad and Tobago Chapter, and Professor of Industrial Engineering of the Faculty of Engineering at UWI, T&T. He is a Registered Professional Engineer in Australia, Europe, Hong Kong, and T&T. His research interests include industrial engineering, engineering management, and quality systems.
(Email: KitFai.Pun@sta.uwi.edu)

1. Introduction

Radio frequency identification is a wireless technology that allows for automated remote identification of objects, animal or person. Integrating the technology with sensor technology opens the doors to RFID sensor tags for monitoring process conditions, with respect to the regulations in different countries/regions (see Table 1). RFID has a lot of potentials as a low-power wireless platform for sensing and measurement tasks.

Table 1. Regulations for UHF RFID Systems in Different Countries

Countries/Regions	Frequency Band [MHz]	Effective Isotropic Radiated Power, EIRP [W]
Europe	865.6 - 867.6	3.28
China	840.5 - 844.5	3.28
Republic of Korea	920.5 - 924.5 817 - 920.8	4
Japan	917 - 923.5 852 - 956.4	0.2 4
Canada	902 - 828	4
United States	902 - 828	4
Australia	820 - 926	4
	918 - 926	1

Source: <https://rfid4u.com/rfid-regulations/>

2. RFID Sensor Tags and Applications

RFID sensor tags can be grouped under four categories, namely RFID electromagnetic sensor, RFID tag integrated sensor, RFID tag array, and RFID sensor networks (Aleong, 2019). Table 2 presents the fundamentals of measurement for each category. These sensor tags have grown into a multitude of applications (Meng and Li, 2016), for instance, in postal services to track packages and shipment locations; in manufacturing to track parts delivery; tagging livestock, particularly cattle; retail item management; as a form of payment such as road tolls; security access and control to prevent unauthorized personnel from entering buildings or room without a swipe card (see Figure 1). Moreover, REID system has combined the capability of global positioning system (GPS) that extends the possibility of acquiring sensor data including resistance measurement, temperature, vibration, pressure, movement and location to be wirelessly transmitted through such mediums as the internet of things (IoT). The introduction of printed circuits also plays a promising role in future developments of the tag design.

Table 2. Categories of RFID sensor measurement

Categories	Fundamental of Measurement
RFID electromagnetic sensor	The normal passive RFID tag or chip less RFID, for which measurement is based on the analysis of its spectral or phase characteristics
RFID tag integrated sensor	Integrated with a sensor module, RFID is used for energy harvesting and data transmission
RFID tag array	RFID array for expanding measurement space or for localisation and tracking
RFID sensor networks	Battery less and low-cost solution for wireless sensor networks monitoring

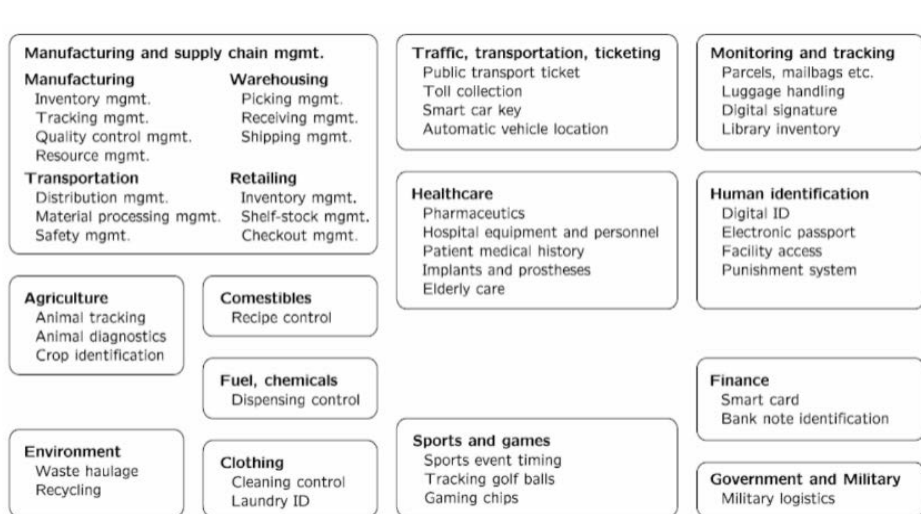


Figure 1: Applications of RFID Technology

Source: Aleong (2019)

Amongst various sensor tags, the UHF RFID tags have good performance balance of range and readability. Research and practical work on utilising these sensor tagging solutions has been expanding (Aleong, 2019), for instance:

- temperature measurement comprising of passive resistive sensor and an ultra-wideband (UWB) reader,
- low-power sensor nodes for use in temperature sensing applications,
- using organic electronic sensing materials with diverse response mechanisms to different vapours and passive RFID sensors with multivariable signal transduction,
- use of ink-jet printed RFID sensor technology in monitoring water quality and humidity,
- use of perpetual RFID-enabled sensing platforms for cognitive intelligence applications, and
- use of RFID sensors with water absorbing materials for humidity sensor or carbon nanostructures for gas sensors for the purpose of detecting a parameter change.



However, the UHF RFID tags are susceptible to interferences caused by environmental idiosyncrasies, such as metal distortion. This might cause the signals to be absorbed or reflected if the tag is in close proximity to metal (Meng and Li, 2016). Tackling potential failures of data transmission is an area for the UHF RFID tags in the smart sensory integration.

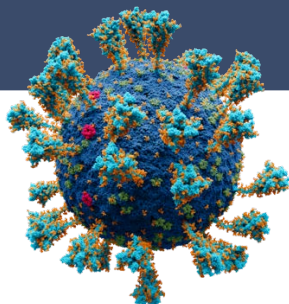
3. Closing Remarks

RFID has become a versatile technology with advances in the field of smart sensing. R&D on the UHF tags continues towards assuring interoperability, maintenance of low-cost requirements, and data security. Future work would be an extension of the range and utility of wireless sensors especially the ones that are designed with passive-based tags. Another RFID research/ applications are on energy harvesting and power scavenging of ambient energy sources (such as light, vibration, and heat).

References:

Meng, Z., and Li, Z. (2016), "RFID tag as a sensor: A review on the innovative designs and applications", *Measurement Science Review*, Vol.16, No.6, pp.305-315.

Aleong, T. (2019), *A Review of Literature on the Advancement of Ultra High Frequency RFID based Sensor Tag in Industrial Applications, from 2000 to 2019*, Directed Reading Report, The University of the West Indies, Trinidad and Tobago, May



Global warming, antibiotic resistance and COVID-19

Author: Professor Raymond Jagessar, University of Guyana

ABSTRACT

Our world is currently faced with three major problems: Global warming, antibiotic resistance, and COVID-19. Global warming is mainly caused by the emission of “greenhouse” gases such as CO₂, methane (CH₄) and nitrous oxide (N₂O). Global warming has manifested itself in the melting of ice caps, glaciers, rising sea levels, flooding, intense unseasonal rainfall, intense hurricanes, drought or periods of extremely dry weather, higher heat index etc. It has affected the entire world, of which the Caribbean is of no exception. These include destruction of country infrastructure and economy, flooding etc. Antibiotic resistance, results from indiscriminate use of antibiotics and is on the rise. It mostly occurs with the use of synthetic analogues and thus research in the herbal medicines and commercialization should intensify. Coronavirus disease 2019 (COVID-19), is a contagious disease induced by severe acute respiratory syndrome, coronavirus 2 (SARS-COV-2). The first case was identified in Wuhan, China, in December 2019. Since then, it has become a pandemic. To date 117,764,619 million cases have been reported, with over 2,613,747 deaths and 66,737,497 recovered cases. In Guyana, as of March 10, there are 8,847 confirmed cases, 204 deaths, with 8,200 recovered cases. To date, four vaccines have been approved for the fight against COVID-19.

Keywords: global warming, antibiotic resistance, COVID-19, greenhouse gases, herbal medicines, commercialization

Guyana Innovation Award

Professor Subramaniam Gomathinayagam, Director, UG Berbice Campus, and Professor Raymond Jagessar, President of the Caribbean Academy of Sciences and Senior Lecturer at the University's Turkeyen Campus were recognised by the 'Guyana Innovation Prize Stakeholders' for their research in the field of science and technology. They are both recipients of grants for their research projects.

Professor Gomathinayagam's research aims at producing a biological agent named 'Bio-Diamond,' a biological control agent of plant diseases. His motivation and vision are for Guyana to become an 'Organic Farming' country. Therefore, 'Bio-Diamond' should minimise the use of commercial chemicals and fertiliser."

Professor Jagessar's research entitled, "Stone Wall Diamond Natural Antimicrobials and Antidiabetics aims at the prevention of antimicrobial resistance and diabetic surge in Guyana

The Caribbean Academy of Sciences wishes to congratulate Professor Subramaniam Gomathinayagam and Professor Raymond Jagessar as recipients of this award.

Key Features of the CAS 22nd Biennial Conference



Feature Address Speaker: Hon. Vikram Outar Bharrat, Minister of Natural Resources, Government of Guyana

Outlined the importance of achieving the SDGs particularly renewable energy



Main Address: Dr. Parris Lyew-Ayee, Jr., Advisor to the Minister of Science, Energy and Technology, Jamaica

Explained the role of science, technology and innovation policies in national development"



Opening Remarks: Prof. Paloma Mohammed -Martins, Vice Chancellor, University of Guyana

Identified the importance of investments in research and basic education

SPECIAL AWARD FOR OUTSTANDING SERVICE

His teaching spanned from 1971 in the areas of Transport Phenomena, Biochemical Engineering, Transport of Pollutants, Air Pollution, Applied Chemistry, Introduction to Engineering, Food Engineering, Sugar Technology, Fluid Dynamics and Heat & Mass Transfer among other things.

Professor Emeritus Winston Mellowes' major research areas have been in Sugar Technology, Environmental matters, and biomass utilization, transport phenomena and food engineering and technology. He has a joint US patent in Xanthan Gum production from sugar cane juices. He has publications in many of these areas.

He has served as Chairman Board of Governors NIHERST from 2017 - 2020 and immediate Past President of the Caribbean Academy of Sciences now Foreign Secretary. Professor Emeritus Winston Mellowes is recognized as the longest serving President of the Caribbean Academy of Sciences. He has also served CAS in every position on the CAS Council & or Executive since 1980s. Professor Emeritus Winston Mellowes also spearheaded the organization of Inquiry Based Science Education (IBSE) and STEM workshops throughout the Caribbean.



**Prof. Emeritus
Winston Mellowes,**
*Foreign Secretary and
past President of the
Caribbean Academy of
Sciences (CAS)*

Conference Presentation Prize Winners

Congratulations to the Presentation Prize Winners

Prize Winners	Theme	Affiliation
Travon Sheoprashad	Education, Humanities and Social Sciences	University of Guyana
Karen Reminy	Medical and Pharmaceutical Science	Université des Antilles
Holly Trew	Environment and Ecosystems	UWI Cave Hill
Akeem Mohammed	Renewable Energy	UWI St Augustine
Vishal Ganessingh	Pure and Applied Sciences	UWI St Augustine

New CAS Fellows Announced



CAS FELLOW

Prof. Kit Fai Pun

MSC, MEd, MPhil, PhD, CEng, Eur Ing, CPEng, APEC Eng, RPE, REng, NER, IntPE(Aus), FIEAust, FIET, FHKIE, FHKSQ, FAPETT, TWAS Fellow

2001

Senior lecturer at The University of the West Indies (UWI), St Augustine, Trinidad and Tobago.

2004

Tenured and is currently Chair Professor of Industrial Engineering (IE) & the coordinator of IE Research Group.

2006-2007 & 2009-2012

Deputy Dean in Research and Postgraduate Student of the Faculty of Engineering

2012-2015

Campus Coordinator of the School for Graduate Studies and Research.

Held several academic positions at The City University of Hong Kong, and worked in industry as operations executive, researcher, engineer and consultant, in Hong Kong and the United Kingdom. He is a Chartered Engineer and Chartered Marketer in the UK, as well as Registered Professional Engineer in Australia, Europe, Hong Kong, and The Republic of Trinidad and Tobago.

A Fellow of the World Academic of Science (TWAS), and several professional bodies and learned societies (including IET, IEAust, HKIE, HKSQ, and APETT). Prof. Pun is current president of the CAS - Trinidad and Tobago Chapter, and have been serving as the Chairperson of the Technology and Engineering Management Society Chapter of the IEEE Trinidad and Tobago Section since 2003.

Was the Chair of the Mechanical & Industrial Division of the Association of Professional Engineers of Trinidad and Tobago (APETT) from 2004 to 2009, and the Chair of the Port of Spain Section of the American Society for Quality (ASQ), Trinidad and Tobago (2016-2019).

Research activities - industrial engineering, engineering management, performance measurement, quality, and innovation.

Published more than 300 journal articles, technical papers, reports and teaching aids, and had completed 20 research projects funded by UWI and other overseas universities and governments. I am presently supervising five (5) MPhil/PhD students at The UWI.



CAS FELLOW

Dr. Mark Wuddivira

Dr. Mark Wuddivira is the Dean of the Faculty of Food and Agriculture (FFA), The University of the West Indies, St. Augustine Campus, and a Senior Lecturer in Environmental Soil Physics. Before becoming the Dean, he acted as the Manager of the University Field Station, after which he was appointed as Deputy Dean (Undergraduate Student Affairs). After a three-year stint as the Deputy Dean, he was appointed as the Head of the Department of Food Production until his recent appointment as the Dean of the FFA.

He obtained his BSc in Agriculture and MSc Soil Science from Ahmadu Bello University, Zaria, Nigeria, and Ph.D. Soil Science from The UWI, St. Augustine. He has completed several research projects. His research has been in the area of agricultural and environmental soil physics, geophysical imaging, soil and water management, and soil natural capital and ecosystem service assessment with a focus on the management and sustainable use of humid tropical ecosystems under intense rainfall and the impact of deleterious land-use practices. He has contributed more than 110 academic publications, 44 of which have appeared in high-impact refereed journals.

He served as the treasurer of CAS regional and currently serving as the PRO.



CAS FELLOW**Prof. Thomas Forrisier**

Director of the Center for Research and Resources in Education and Training (CRREF, EA 4538)
 Member of the Caribbean Academy of Sciences (CAS). President of the French Departments of America Chapter (2016 - 2018)
 Responsible for the research course (CDEF then PIDC) of the Masters in teacher training. (2011-2020)
 Responsible for the year of preparation for CAPES SVT (2005-2011)

Publications:

- Expertise of articles for the international congress of European Science Education research association (ESERA) conference 2011, 2013, 2015, 2017.
- Reviewer for the journal Recherche en Didactique des Sciences et Technologies (RDST)
- Didactic book chapter reviewer (computer science series, Springer)
- Regional Center for Educational Documentation (School book and educational games)
- ADEME Guadeloupe (productions on cognitive perception of waste in Guadeloupe)

Keynote Speakers

Plenary Address: "Achieving a Greener Caribbean – Filling the Gaps from an Environmental Perspective" (25 Mintes)

Dr. Devon Dublin, Hokkaido University of Education



DR. DEVON DUBLIN is a Guyanese born and Cuban trained Veterinary Doctor and Zootechnician. He holds a Masters in Marine Life Sciences from the Graduate School of Fisheries Sciences and a PhD in Environmental Science Development from the Graduate School of Earth Sciences, both from Hokkaido University of Education in Japan. He has

been involved in the management of international developmental projects in Latin America and the Caribbean, Asia and Africa. He is involved in multidisciplinary research related to sustainability, One Health, Socioecological production landscapes and seascapes (SEPLS), and human-nature interaction. Dr. Dublin is a world traveler

Plenary Address: “Critical Perspectives on Education, Humanities and the Social Sciences: The Legacies of Colonialism and Enlightenment Reason” (25 Mintes)

Prof. Percy Hintzen, Florida International University



PERCY C. HINTZEN is Prof. Emeritus at the University of California Berkeley where he taught for 33 years. He earned his Ph.D. in Comparative Political Sociology from Yale University in 1981. He is currently Prof. of Global and Sociocultural Studies at Florida International University. While at Berkeley he served as Director of the Center for African Studies, Chair of African American Studies, Director of Peace and Conflict

Studies, and Acting Director of the Center for Race and Gender. His research and scholarly production examine relationships among modernity, globalization, and postcolonial political economy.

Plenary Address: “The Guiana Shield ecoregion: a threatened source of under-utilised renewable resources for sustainable development.” (25 Mintes)

Dr. Patrick Chesney, Guiana Shield Facility



DR. PATRICK CHESNEY is renowned for his work on the Guiana Shield having co-founded and led the Guiana Shield Facility (GSF) for the promotion of, and delivery of support to, the conservation and sustainable development of the Guiana Shield ecoregion, one of three ecoregions of the Amazonian biome. The work of the GSF eco-regional platform has been recognised by the Convention on Biological Diversity, the

European Parliament (E-013974/2013) and the Amazon Cooperation Treaty Organisation (ACTO 2017; ISBN 978-85-61873-09-7). He is a graduate of the University of Guyana (B.Sc. Agriculture), University of Puerto Rico (M.Sc. Horticulture) and Centro Agronómico Tropical de Investigación y Enseñanza (CATIE) in Costa Rica (Ph.D. Agroforestry).

Plenary Address: "Pale blue dot - our only home"(25 Mintes)

*Dr Shirin Haque, The University of the West Indies,
St. Augustine, Trinidad and Tobago*



DR. SHIRIN HAQUE is an Astronomer at the University of the West Indies, Trinidad. Her areas of research include cosmology, astrobiology and observational astronomy. She is the recipient of several local, regional and international teaching and Science awards and is the first woman to receive the CARICOM Science Award and is the 2020 laureate of the prestigious Anthony N. Sabga Caribbean Award for Excellence in Science and Technology. She has produced several Caribbean Science documentaries and produced and hosted two television series on Science. She is the editor and producer of the magazine "The Intellectual - art, science and architecture".



DR. MAYA TROTZ is a Guyanese born professor of Civil and Environmental Engineering at the University of South Florida. She directs STRONG Coasts, a National Research Traineeship program to foster food, energy, and water solutions with coastal communities, and leads the knowledge management component of a Green Climate Fund project, "Water Sector Resilience Nexus for Sustainability in Barbados." She is a past President of the Association of Environmental Engineering & Science Professors and a board member of Fragments of Hope Corp, a coral restoration NGO in Belize. She holds a BS in Chemical Engineering from MIT, and MS and Ph.D. degrees in Environmental Engineering from Stanford University.

Special Events Were Hosted As Part Of The 22nd Biennial Conference

Youth Forum which aimed at encouraging the region's youth to embrace career paths in STEM

"Career trajectories: On the shoulders of giants."

14:10 HRS – 16:10 HRS

MODERATOR



DR. MARVADEEN SINGH-WILMOT is Lecturer in Inorganic Chemistry and Associate Dean for Student Experience in the Faculty of Science and Technology at the University of the West Indies, Mona, Jamaica. She leads an active research group in the areas of lanthanide chemistry and metal-organic framework materials. Singh-Wilmot has a passion for science and is committed to the promotion of science as a tool for development. She uses science to enlighten and delight young people, from preschoolers to post-graduates, and she serves in various capacities as an advocate for science in her country.

PANELISTS



DR. K RENEE HORTON is an advocate for diversity and inclusion in Science, Technology, Engineering and Mathematics (STEM), and works diligently in the community for STEM education and STEM outreach. Renee believes in changing the face of STEM. She is the founder of Unapologetically Being, Inc., a nonprofit

for advocacy and mentoring in STEM and serves as a quality Engineer for NASA in New Orleans. Dr. Horton is the past president of the National Society of Black Physicists and the author of a children's series titled Dr. H Explores the Universe.



MS. LOIS OLIVER has worked in various areas in manufacturing and the science policy sector for the last 20 years. Her first role fresh out of UWI Cave Hill campus was with Banks (Barbados) Breweries Ltd. as a laboratory technician, where her love for manufacturing was born. She moved on from manufacturing and eventually to

STEM policy and curriculum reformation and advocacy as the Assistant Director at the Caribbean Science Foundation. Manufacturing remains her first and true love, and she has returned to that field as manufacturing manager with oversight for quality assurance and R&D for a Barbadian food and cosmetics company.



DR. CLAIRE NELSON is the architect of the successful Campaign to declare June as National Caribbean American Heritage Month in the U.S. A renaissance woman, she is a Development Engineer, Social Entrepreneur, and Futurist. The first Jamaican woman to earn a Doctorate degree in an engineering discipline and the only black in her graduating class, Dr. Nelson holds Industrial Engineering Degrees from the State University of New York at Buffalo, Purdue University, and a Doctorate in Engineering Management from George Washington University. Recognized as a White House Champion of Change, she is sought after as a speaker on issues pertaining to economic development, globalization, and issues concerning the Caribbean and its peoples.



MS. FARNAZ BAKSH was a freshman at the University of Guyana in 2016 when she established the University of Guyana Robotics Club - Guyana's first makerspace, helping students innovate by freely expressing their ideas. She later led the national robotics team to rank in the top ten globally at the inaugural FIRST GLOBAL Challenge 2017.

For her selfless efforts, she received the 2019 Guyana's National Youth Award for advancing youth development in Science & Technology. Ms. Baksh graduated with a Bachelor in Computer Science and is pursuing a Masters of Robotics at the University of Tartu, researching how affective computing will help students overcome learning disabilities.



MR. DAVE SARRAN is a lecturer within the Department of Computer Science at the University of Guyana and serves as the Assistant Dean within the Faculty of Natural Sciences. Mr. Sarran lectures in the areas of information systems design and deployment, information systems project management and information and communication technologies for development (ICD4D). His research

interests encompass the transformative potential of ICTs, e-governance and ICT policy development, and sustainability of ICT strategies in developing countries. Mr. Sarran holds a BSc, MBA and MSc. from the University of Guyana, Australian Institute of Business and the University of Sheffield, respectively.

Women in STEM Forum

"Career trajectories: Overcoming barriers and advancing to leadership."

13:30 HRS – 15:00 HRS

MODERATOR



MRS. PETAL PUNALALL JETOO is the Secretary of the Caribbean Academy of Sciences (CAS) Executive Committee. She also serves as STEM facilitator with CAS. Ms. Punalall Jetoo coordinated UNESCO funded projects for Guyana and selected CARICOM countries aimed at boosting national Science, Technology and Innovation (STI) capacities. As Guyana's National Science Coordinator (2008-2019) she introduced Inquiry Based Science Education (IBSE), STEM education and Education for Sustainable Development (ESD). Ms. Punalall Jetoo was appointed as GuySuCo's first female Production Manager and led its ISO 9001 certification process. She presently works as a Chemist with American Sugar Refining Inc.

PANELISTS



DR. SHIRIN HAQUE is an Astronomer at the University of the West Indies, Trinidad. Her areas of research include cosmology, astrobiology and observational astronomy. She is the recipient of several local, regional and international teaching and Science awards and is the first woman to receive the CARICOM Science Award and is the 2020 laureate of the prestigious Anthony N. Sabga

Caribbean Award for Excellence in Science and Technology. She has produced several Caribbean Science documentaries and produced and hosted two television series on Science. She is the editor and producer of the magazine "The Intellectual - art, science and architecture".



DR. K RENEE HORTON is an advocate for diversity and inclusion in Science, Technology, Engineering and Mathematics (STEM), and works diligently in the community for STEM education and STEM outreach. Renee believes in changing the face of STEM. She is the founder of Unapologetically

Being, Inc., a nonprofit for advocacy and mentoring in STEM and serves as a quality Engineer for NASA in New Orleans. Dr. Horton is the past president of the National Society of Black Physicists and the author of a children's series titled Dr. H Explores the Universe.



DR. MALIKA GRAYSON is the founder of STEMInist Empowered LLC. Her work in STEM has led to her being named one of Trinidad and Tobago's 40 Under 40 Youth Influencers by the country's Ministry of Youth and Sports Affairs. Fortune 100 global speaker, bestselling author, and mechanical engineer, currently, Dr. Grayson is a Computer Systems Architect at Northrop Grumman

Corporation where she is the Applications Portfolio Manager in the IT Organization. Over the past few years, she has had experiences in systems engineering, software development, R&D portfolio management and strategy.



DR. MAYROSE SALVADOR received her B.Sc. in Chemistry from the University of the Philippines and her PhD in Physical Chemistry from the University of Toronto. She is the co-founder of Pueblo Science, a Canadian charity that has provided training to over 3,900

science teachers and has engaged over 400,000 students in science. In collaboration with the Impact Centre at the University of Toronto, she helped deploy affordable solar lighting to the indigenous communities of the Philippines.



PROF. NEELA BADRIE is a Lecturer and Researcher in microbiology and food safety at The University of the West Indies, St. Augustine, Trinidad and Tobago. She is also an attorney at-law at the Supreme Court of Trinidad and Tobago. Dr. Badrie is a Fulbright scholar, a fellow of The World Academy of Sciences (TWAS, Italy) and the Caribbean Academy of Sciences (CAS). At present, she serves as the Caribbean focal point for women in science on the InterAmerican Network of Academy of Sciences (IANAS), on the biosecurity working group of the InterAcademy Partnership (IAP) and as treasurer for CAS Central.

Save the Date

November 10, 2021

World Science Day



UNESCO and CAS will host a High-Level Forum on
Regional Science, Technology and Innovation
Integration

Guidelines for Submission of Articles for CAS Newsletter

1. Articles should not exceed 1000 words (1 ½ pages)
2. Images should be submitted as separate files

Articles should be submitted to:

casexecutive2021@gmail.com