



1st RUHUNA INTERNATIONAL SCIENCE AND TECHNOLOGY CONFERENCE

Programme and Invited Lectures

22 and 23 January 2014

**Towards
Transdisciplinary
Research Culture**

**Faculty of Science, University of Ruhuna,
Matara, Sri Lanka.**

RISTCON 2014

1st Ruhuna International Science and Technology Conference

January 22-23, 2014

‘Towards Transdisciplinary Research Culture’

Programme and Invited Lectures

Faculty of Science
University of Ruhuna
Matara 81000, Sri Lanka

1st Ruhuna International Science and Technology Conference

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The funding received for publishing the proceedings through the university grant 'Transforming University of Ruhuna to International Status' (TURIS) is greatly appreciated.

Foreword

RISTCON 2014 is organized by the Faculty of Science, University of Ruhuna with an innovative theme ‘Towards transdisciplinary research culture’. The abstracts arisen from research work in diverse disciplines of Science & Technology have been peer-reviewed prior to acceptance. This booklet is compiled in order to provide the detailed programme to the participants of the 1st RISTCON, and to present the abstracts of the lectures/speeches of the invited speakers. The abstracts accepted to be presented at the conference have been edited only to maintain language accuracy and page limits and compiled to an accompanied CD included in the conference package. Only the abstracts that have been presented at the conference will be published in an ISSN publication of ‘Abstracts and Proceedings of RISTCON’ after receiving author confirmation to the edited version.

Editor-in-chief
RISTCON 2014

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Lists of presentations

Oral presentations: Sessions A, B, C, D

Poster presentations: Sessions A, B, C, D

Session details

Session A: Medicine, Zoology and Fisheries Science

Session B: Agriculture and Botany

Session C: Chemistry and Engineering

Session D: Mathematics, Physics and Computer Science

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Programme

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Venue: *Professor Alawaththagoda Pemadasa Auditorium*

Inauguration

1.15 - 2.00 pm	Registration
2.00 - 2.10 pm	Lighting of the traditional oil lamp and playing of the University anthem
2.10 - 2.20 pm	Welcome speech by the Chairperson, RISTCON 2014
2.20 - 2.35 pm	Address by the Dean, Faculty of Science, University of Ruhuna
2.35 - 2.50 pm	Address by the Vice Chancellor, University of Ruhuna
2.50 - 3.00 pm	Felicitation speech to honour Senior Professor R.N. Pathirana
3.00 - 3.40 pm	Speech by the guest of honour Senior Professor R.N. Pathirana
3.40 - 4.10 pm	Tea
4.10 - 4.40 pm	Award ceremony: 'Invention & Innovation Exhibition' held on October 24-25, 2013
4.40 - 5.35 pm	Speech by the special guest, Mr. Pierre Pringiers, Honourary Consul of the Kingdom of Belgium
5.35 - 5.50 pm	Vote of thanks by the Secretary, RISTCON 2014
5.50 - 6.20 pm	Cultural show
6.40 pm onwards	Conference dinner

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Technical Sessions

7.45 - 8.30 am	Registration
8.30 - 9.30 am	Technical sessions (four parallel sessions)
9.30 - 10.00 am	plenary lectures (parallel) by Professor Priyani Paranagama (Session A) Dr. Harendra Fernando (Session D)
10.00 - 10.30 am	Tea
10.30 - 11.30 am	Keynote speech by Professor S. David Jackson, University of Glasgow, UK (Venue: Professor Alawaththagoda Pemadasa Auditorium)
11.45 - 1.00 pm	Technical sessions (continued: four parallel sessions)
1.00 - 1.45 pm	Lunch
1.45 - 2.15 pm	Plenary lectures (parallel) by Professor Neelakanthi Gunawardena (Session B) Professor Alfred A. Christy (Session C)
2.15 - 3.30 pm	Technical sessions (continued: four parallel sessions)
3.30 - 4.30 pm	Tea/ Poster Session
4.30 - 5.30 pm	Technical sessions (continued: four parallel sessions)
5.30 pm	Closing technical sessions

Message from the Vice Chancellor, University of Ruhuna

It is my great pleasure to write this message to the proceedings of the **1st Ruhuna International Science and Technology Conference (RISTCON – 2014)** organized by the Faculty of Science, University of Ruhuna. First of all, I as the Vice Chancellor of University of Ruhuna, wish to offer my heartiest congratulations to the Dean of the Faculty of Science of University of Ruhuna and the organizers of “RISTCON-2014” for their efforts to make this event a success. I consider the theme of the sessions “*Towards Transdisciplinary Research Culture*” provides an appropriate and well-timed platform for academics and researchers from various disciplines to present their findings and exchange ideas on topics such as Agriculture, Botany, Chemistry, Computer Science & IT, Engineering, Fisheries & Aquaculture, Mathematics & Statistics, Medical & Health Sciences, Molecular Biology & Biotechnology, Physics & Geophysical Science, Veterinary Science and Zoology. With this platform, RISTCON-2014, Faculty of Science will strengthen the process of translating new discoveries into products and services for the betterment of the community. Translation of research findings done in a university laboratory into a practical application is only made possible by linking university academics with other stakeholders in a forum like this. This first step might be only a starting point but with hard work and perseverance of the academics at the Faculty of Science, I am sure this will succeed with flying colours.

As one of Sri Lanka’s Public Universities, University of Ruhuna’s main challenge is to remain competitive and relevant by offering high quality academic programmes and research activities. New knowledge and findings

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cannot be generated without research and development (R&D). Therefore, University of Ruhuna during past few years has substantially invested in research and development facilities through “*Transforming University of Ruhuna in to International Status (TURIS) project*”.

Conferences are considered as an essential part of academic programmes of all good universities. Therefore as the Vice Chancellor, I am happy to see that the Faculty of Science is organizing her first international conference this year. I am also glad to learn that many scientists and academics from various countries are participating in this conference.

Organizing an International Research Conference is a big challenge and I am confident that the Faculty of Science would hold this conference to the expectations of the world academic community. Once again I extend my congratulations to the organizers of the Conference and wish them all success. I believe this occasion will be used as a platform for our academics to strengthen their links with other universities and research institutes in knowledge generation and sharing while same time provides the necessary thrust in collaborative researches. I wish all the best for all paper presenters and participants.

Senior Professor Gamini Senanayake
Vice Chancellor
University of Ruhuna
Sri Lanka

Message by the Dean, Faculty of Science

It is with great pleasure that I send this message to the proceedings of RISTCON-2014. The Faculty of Science promoted its annual Science Symposium held since 2002 as a local event to an international event this year as ‘Ruhuna International Science and Technology Conference (RISTCON)’ with the aim of broadening its coverage as well as opening the event to a much wider audience. The theme chosen is, more appropriately, ‘Towards Transdisciplinary Research Culture’.

As the conference is open for major areas of science, engineering, agriculture and medicine in particular, it would be truly transdisciplinary, and therefore, ample opportunity to be familiar with research outcomes of areas other than one’s own. It is evident from the responses received from scientists, with 68 oral presentations and 90 poster presentations accepted, the conference will disseminate high caliber scientific findings and it will also lead to a gathering of very productive and enthusiastic scientists paving the way for many future transdisciplinary research collaborations. The number of presentations has quadrupled this year compared to science symposia held previously making all of us pleased and confident about strength of research culture.

One of the objectives of Ruhuna strategic plan, under the goal of enhancing relevance of research, is to ensure that a great majority of researches undertaken by the university addresses regional as well as national needs. Sri Lankan scientists have an obligation to conduct applicable research towards the development of the nation in addition to performing fundamental

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research and must contribute to the development by providing relevant science and technology knowledge to local industries, especially, to develop small scale industries to enhance their productivity and to improve the quality of their products and processes. Local industries may very well be considered as research laboratories, where one can easily identify several research problems to be carried out. I believe that initiating transdisciplinary research would play an important role in achieving such broader objectives. I thank the organizing committee, chaired by Dr. Madurani Edussuriya, as well as all others for realizing the challenge of organizing the first RISTCON and making the event a success and more importantly, all authors who made this event worthwhile by contributing to oral and poster presentations.

Professor W.G.D. Dharmaratna

Dean/Faculty of Science

Senior Professor of Physics

2014-01-22

Message from the Chairperson- RISTCON 2014

It is a great pleasure for me to release this message at the time when the Faculty of Science upgraded its annual Science Symposium to an international conference. Also, it is an honour for me to hold the chair position of the organizing committee and face the challenge of organizing this remarkable event of the Faculty. Moving with the theme of the conference “Towards transdisciplinary research culture”, it provides a platform for scientists of various disciplines to present the research findings of their investigations to a wide spectrum of local and global audiences, interact with guest speakers and invited speakers giving them an invaluable opportunity. This forum provides a prospect to participants to get a feedback for future research through exchanging ideas as well.

This event is enriched by a considerably large number (total of 158) of reviewed and selected oral and poster presentations and invited presentations of eminent scientists of the world. A total of 204 abstracts from various disciplines were received from the Universities and research organizations from Sri Lanka and south-Asian countries, and a stringent review process selected 80 abstracts as oral presentations and 90 abstracts as poster presentations.

I wish that in the future, University of Ruhuna through its research will be in the forefront in catering to the sustainable development of this country by covering both fundamental and applied research especially in the areas of industrial sector with enhancing collaboration with it.

The event inauguration also provided a valuable forum for us to felicitate Senior Professor Ranjith N. Pathirana, former professor of Chemistry who rendered his invaluable service to the Faculty of Science and the University of Ruhuna for more than 30 years.

I take this opportunity to thank the members of the organizing committee for their untiring effort and commitment to make this event a success. I wish all the presenters and the participants a very successful and productive conference, RISTCON 2014.

Dr. (Ms.) Madurani Edussuriya
Chairperson/ Organizing committee of RISTCON 2014

Keynote Speech

Can catalysis save the world? Catalysis in the 21st Century

S. David Jackson

*Centre for Catalysis Research, WestCHEM, University of Glasgow,
Glasgow G12 8QQ, Scotland, UK*

Over the last 100 years catalysis has developed from a fledgling subject to a mature, complex area of study that touches all our lives. Indeed so pervasive is it that the words catalysis and catalyst have entered common usage in the language. Over the course of the last century catalysis has contributed to our food supply through ammonia-based fertilisers and fat hydrogenation, our clothes through polymerisation and our fuel supply through alkylation and hydrogenation. Today over 90 % of all chemicals, including pharmaceuticals, are produced using a catalyst. Catalysis also has a role in preserving our environment by for example purifying the air through catalytic convertors on cars or water remediation.

As we move forward in the 21st century the challenges facing the planet are reflected in a growing population and the need to ensure sustainable production, renewable energy and fuels for mobility. In this presentation I will look at these three areas and how catalysis is facilitating change to new and better systems.

Sustainable production requires a move away from fossil fuels and towards a chemical industry based on renewables. The chemistry will still be based on carbon but will utilise new raw materials from biomass. A range of molecules can be derived from biomass that have been identified as potential platform chemicals, chemicals upon which a new range of products can be developed. However most of these chemicals are based on carbohydrates, which allow access to many chemical systems but struggles to deliver

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aromatic species. To access aromatic compounds from biomass one must look to lignin. In the presentation I will look at how lignin can be used as a raw material feed to make a range of chemicals.

The world's need for energy continues to grow and hydrogen has been seen for many years as a clean non-polluting source and catalysis has a role in delivering hydrogen effectively and sustainably. In the long term, the goal of using photocatalysis to generate hydrogen and oxygen from water will be achieved but in the interim hydrogen will be produced from biomass derivatives such as ethanol. In the presentation I will look at the production of hydrogen from ethanol and the issues that still have to be addressed.

Finally I will discuss the production of synthetic fuels from renewable sources looking at Fischer-Tropsch chemistry.

Catalysis has advanced considerably over the last 100 years but it has done so using the skills and knowledge of scientists in a range of disciplines, chemistry, chemical engineering, mathematics, computer science, biology and physics. Over the next 100 years catalysis has much more to offer but it will need more dedicated interdisciplinary and transdisciplinary work to achieve these goals.

Felicitations Speech

Felicitations to Senior Professor R. N. Pathirana

Dr. Aruna S Dissanayake

Senior Lecturer, Department of Chemistry, University of Ruhuna



It is a great honour and privilege to be presenting this speech to felicitate Senior Professor R. N. Pathirana, an academic, a great researcher, a successful administrator and a colleague who has retired from the university service in February 2013.

At the time of this great endeavour the Faculty of Science, University of Ruhuna is having the first of its kind international scientific event, the RISTCON 2014, the faculty wholeheartedly wishes to felicitate retired Senior Professor R. N. Pathirana for the yeoman service rendered by him to the Faculty of Science, University of Ruhuna during the last 30 year period.

Ranjith Nandalal Pathirana was born on 13th June 1947 in the beautiful village of Elpitiya in Galle District. He had his initial education at Mahinda College, Galle and subsequently at Nalanda College, Colombo. In 1968, he entered the Faculty of Science, University of Peradeniya and received his BSc degree in 1971.

He started his career firstly as a Chemistry Teacher at Richmond College, Galle and secondly as a Chemist at Sri Lanka Sugar Corporation, between 1974 to 1978. In 1978, he proceeded to the University of Southampton, U.K for postgraduate studies

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and obtained his MSc degree in Photochemistry in 1979 and later his PhD in Organic Chemistry in 1982.

On his return to Sri Lanka, he was appointed as a Lecturer in Chemistry in the University of Ruhuna in 1982. This appointment marked the beginning of an academic career with a long, dedicated service to the University of Ruhuna. He along with late Professor Wijayanayake had to overcome many challenges in bringing up the department of Chemistry in early stages. In 1985 he was appointed as the head of the department of chemistry and again in 1989 for a brief period of time till he became the elected Dean of the Faculty of Science. His great service to the university is exemplified by shouldering administrative positions and taking up responsibilities in an extremely difficult situation in the university as well as in the country during 1988-89 period due to insurrection particularly in the south. After returning from his sabbatical leave he again served as the Head of the Department of Chemistry from 1992-95. He was the elected Dean of the Faculty in 1998 for a short period and re-elected twice in 2001 and 2004 to serve the Faculty for six long years. During this period the Faculty took a gigantic step to introduce the present course unit curriculum and also to hold the First Science Symposium in December 2002 under the leadership of Professor Pathirana as the Dean. After relinquishing his office as the Dean in 2007, he was appointed as the Head of the Department of Chemistry in the same year and continued this position until the end of 2009.

Professor Pathirana has become a renowned authority on Plant Natural Product Chemistry and has recently shown a great interest in Medicinal Chemistry. Beginning from 1982, he was the author or co-author of over fifty scientific publications and has reviewed eight text books. He has made a striking contribution at many international conferences.

He was also a recipient of a number of competitive research grants from international and local institutions; Cancer Research Campaign, U.K. Third World Academy of Science, Italy and Natural Resources, Energy and Science Authority of Sri Lanka. The collaborative research programme he initiated with the Faculty of Medicine on Phytochemical and Biological Investigation of Medicinal and Related plants of Sri Lanka Sponsored by NARESA created opportunities for post graduate studies. Prof. Pathirana had been a supervisor/co-supervisor of number of postgraduate students.

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Professor Pathirana was awarded fellowships from a number of institutions in U. K for his excellence in research. He was a Visiting Research Fellow of the University of Birmingham in 1989-90 and a Postdoctoral Research Fellow at the University of Southampton in 1990-92. He was also a Visiting Research Fellow of University of Cardiff, Wales in 1998-2000 and served as a Short-Term Visiting Professor and a Senior Academic Visitor to the same university in 2004 and 2010.

In addition to his academic and administrative career, Professor Pathirana held several important positions. He was the Faculty nominee to University Senate in 1983 –85, Senate nominee to the Council of University of Ruhuna in 2007-10, Coordinator of the University of Ruhuna, Science & Technology Personnel Development Project, Asian Development Bank., Member of the Board of Management, Postgraduate Institute of Science, Sri Lanka and also a Subject Reviewer for the Quality Assurance Programme.

Professor Pathirana's contribution to the advancement and dissemination of science in Sri Lanka is equally praiseworthy. He served as a member of the curriculum development committees of the Allied Health Science Degree Programmes (BSc-MLS and BPharm), Faculty of Medicine, University of Ruhuna and also was a Visiting Professor to the same degree programme.

In appreciation of his 30 years of dedicated and unparalleled service to the academic community in the University of Ruhuna, the Faculty of Science has recommended appointing him as an Emeritus Professor soon after his retirement in February 2013. After retirement, he is presently serving as the Senior Professor of Chemistry at the Department of Basic Sciences, Faculty of Allied Health Sciences, General Sir John Kotelawala Defense University, Ratmalana.

Senior Professor Pathirana's service to Ruhuna Science Faculty cannot simply be measured by years he spent at Ruhuna. Faculty of Science, University of Ruhuna is ever grateful to Senior Professor Ranjith N Pathirana for what he has contributed towards the development of the faculty, and wishes him healthy long life with the blessings of the Nobel Triple Gem.

Speech of Guest of Honour

The role of serendipity in drug discovery

Prof. R. N. Pathirana

*Department of Basic Sciences/Faculty of Allied Health Sciences
General Sir John Kotelawala Defence University, Ratmalana*

Sir Horace Walpole (1717-1797), Earl of Oxford and member of the English parliament, had coined the term *Serendipity* for accidental discoveries. Serendipity is derived from Serendip, the old Sanskrit name for Sri Lanka. In an 18th century play by Horace Walpole called “The Three Princes of Serendip”, the princes made remarkable discoveries that they were not seeking during their travel to Sri Lanka. Hence serendipity came to mean an “**accidental discovery**” i.e. “finding one thing while looking for something” Doctor Out, of Zebulon column in the Archives of Internal Medicine defines serendipity as “a mental state in which serenity and stupidity are blended,”

Development of the drug discovery: Early Drugs

In 1856 an 18-year-old English chemist named William Henry Perkins (1838-1907) discovered bluish substance that he extracted from a “black mess” in his test tube, which had excellent dyeing properties while trying to synthesize quinine. This is the first artificial dye in history, variably referred to as aniline purple, tyrian blue, or mauve, triggered a chain reaction by serendipity. Modifications of his process led to the development of many dyes and the emergence of the dye industry. This led to the synthesis of organic compounds which can be considered as the birth of the **pharmaceutical industry**. Perkins' discovery cannot be attributed to pure luck. He studied at the Royal College of Chemistry in London under August Wilhelm von Hofmann (1818-1892), one of the pioneers of aniline

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chemistry. His serendipitous discovery was built on his knowledge and past experience. He was also fully aware of the potential use of his discovery.

Nitrous oxide (1772), mustard gas (1843), nitroglycerine (1847), potassium bromide (1857), chloral hydrate (1869) and aspirin (1897) are some of the serendipitous drugs that were discovered in the 18th and 19th centuries.

Penicillin (1928), lysergic acid diethylamide(LSD)(1943), Disulfiram (1945), lithium (1945), iproniazid (1950), warfarin (1951), chlorpromazine (1952), librium (1955), cisplatin (1965) cyclosporine (1976) and viagra (1998) are examples for the major serendipitous drugs discoveries during the 20th century.

Serendipity in recent drug design

Serendipitous discoveries are widely present in the development of new drugs. The observations of the inhibition of bacterial growth by a mould (penicillin), the anti-malarial (quinine) or the anti-arrhythmic (quinidine) activity of substances present in the bark of a South-American tree and the sweet taste of the hands after a day at work (saccharin) are only some examples of serendipity in drug discovery. However, only open-minded researchers are able to recognise new effects and turn them into new drugs. Among these, the most potent anti-varicella zoster virus (VZV) compound reported to date has been added recently. This discovery was a combination of luck and by the open-minded virologists and chemists. In fact, the initial inactive compound was converted into the active species during the transportation from the chemistry to the biology laboratory. In 1998, this serendipity led the discovery of a new class of potent and selective anti-VZV agents so-called Bicyclo Nucleoside Analogues (BCNAs). Structure Activity Relationship Study (SAR) led to discovery of the most potent anti-VZV compound to date being at least 1000-fold more potent than the current treatment with acyclovir. The virologists had the foresight to test this compound against a totally different virus, whilst chemists found out the

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chemical structure of the new analog. This compound is now undergoing human clinical trials.

Conclusions

As far as scientific discoveries are concerned, no scientific discovery has ever been made by pure luck.

All happy accidents in science have one point in common: “each was recognized, evaluated and acted upon in the light of the discoverer's total intellectual experience.”

Louis Pasteur (1822-1896) said “chance favours the prepared mind,” Indeed, it is hard to think of a better expression of “serendipity” as one reviews the incredible concatenation of intentional and chance events in medicine's happy accidents.

Prof. R. N. Pathirana

*Former Senior Professor of Chemistry/University of Ruhuna, Matara
Senior Professor of Chemistry, Department of Basic Sciences/Faculty of
Allied Health Sciences*

General Sir John Kotelawala Defence University, Ratmalana

Plenary lecture

Integrated photonic spectrographs and interferometers for ground and space-applications

Harendra Fernando

*Inno FSPEC Potsdam, Leibniz-Institut für Astrophysik Potsdam (AIP),
An der Sternwarte 16, D-14482 Potsdam, Germany*

The integrated circuit (IC) technology developed to double the number of transistors in a chip in every two years (Moore's Law) is approaching the ultimate barriers set by thermal dynamics, quantum mechanics and reaching the limits of miniaturization (atomic size). However, there is one promising way around IC technological limitations by substitution of photons for charged particles (electrons & holes) to realize photonic integrated circuits (PICs *optical chips*) for applications in many areas of science & engineering. One of the main advantages of the IPC approach is the ability to package and shield the circuit from vibrations and temperature induced flexure and misalignment, which is a necessity, especially for high fringe visibility interferometric applications in spectroscopy, quantum cryptography, aircraft safety instrumentation, space-craft navigation systems etc. Photonic Integrated circuits on silicon platforms have a strong potential to provide low cost versatile devices without moving parts and far smaller foot-print (suitable for mass production) as a replacement for existing bulk-optical interferometers and spectrographs currently used in astronomy.

How the manipulation of light-matter interaction can be done for specific applications in high-precision radial velocity measurements required for Earth-like exoplanet detection in astronomy will be presented. Current research activities in astrophotonics instrumentation and PIC developments at inno FSPEC/AIP-Potsdam for ground and space applications will also be briefly discussed.

Plenary lecture

Eco Friendly Pest Control with Semiochemicals

Neelakanthi Ekanayake Gunawardena

Semiochem Lanka PVT LTD, 121, Hunupitiya Lake Road, Colombo 2, Sri Lanka

Semiochemicals are a group of natural products that act as chemical messengers between all living organisms. These chemicals are emitted by one organism and received by another helping the recipient to pursue its life functions such as finding a mate, a food source, shelter or provide defence. The discovery of semiochemicals in 1959 marked a new era in Chemical Ecology- a field in which Chemists and Entomologists began working together. Over 1000 semiochemicals have been chemically identified so far, of which pheromones (a subgroup which act as chemical messages between the same species) have been manipulated to control insect pest populations. More than 400 pheromones are used as baits in insect trapping systems all over the world. The cotton pest (*Pectinophora gossypiella*), coconut pests such as the red palm weevil (*Rhynchophorus ferrugineus*) and the black beetle (*Oryctes rhinoceros*) as well as the fruit fly (*Bactrocera dorsalis*) and the vegetable fly (*Bactrocera cucurbitae*) are examples of the insect pests controlled by this method.

Semiochemicals are completely non-toxic to humans or the environment. This method advocates the minimal use of harmful insecticides thus offering a solution to the environmental pollution by insecticides. Furthermore, it is unlikely that resistant species to pheromones will develop anytime soon. Sri Lanka has been using pheromone baited trapping for tea tortrix (*Homona magnanmia*) for decades with imported pheromones and locally devised traps. In 1999, the pheromone trapping of the devastating coconut pest, *Rhynchophorus ferrugineus* (the red weevil) commenced with the locally

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synthesized pheromone, 4-methyl-5-nonanol. The efficiency of this pheromone was increased three fold by combining pest's other locally found attractants that act as synergists (kiromones) to the pheromone.

Even though the coconut black beetle (*Oryctes rhinoceros*) is a serious pest on young coconut plants, its control through this method commenced only in 2012 because of the high cost of the particular pheromone. With locally found synergists for this pheromone, the activity was increased hence the amount of the expensive pheromone needed for an efficient bait was reduced. The cost of the bait was lowered as a result. Sri Lankan farmers also control several other pests such as the fruit fly (*Bactrocera dorsalis*) and vegetable fly (*Bactrocera curcubitae*), the cigarette beetle (*Lasioderma serricornis*) through the use of baited trapping. The use of pheromones in Sri Lanka is on the increase and expanding to other pest species. Recent revelations of the toxic compounds in our environment and the banning of some insecticides are the likely contributory factors.

Plenary lecture

Applications of Near Infrared Spectroscopy in the Analysis of Hydroxyl Groups on solid samples

Alfred A. Christy

*Department of Science, Faculty of Engineering and Science, University of Agder, Service
box 422, 4604 Kristiansand, Norway*

Near infrared spectroscopy has become an important tool in the analysis of solid samples. The use of transfectance accessory in the analysis has helped infrared spectroscopists in understanding the nature of the hydroxyl groups in solid samples. Second and fourth derivative techniques applied on the near infrared spectra of samples with adsorbed water molecules have revealed the nature of the OH groups and their location in the solid samples.

Applications of near infrared spectroscopy in the analysis of hydroxyl groups of silica gel and carbohydrates have been shown in this presentation. Silicagel, hydrothermally and thermally treated silicagel samples as well as carbohydrate polymers such as amylose, amylopectin and cellulose have been used in this study. Around 0.15g of each sample dried at 200 °C was placed in the sample cup and placed on the crystal of the Near Infrared transfectance accessory. Near infrared spectra of the sample during the adsorption of moisture from the surrounding air was monitored until there is no apparent change in the NIR spectra. The experiment was then repeated for gravimetric analysis. The increase in the mass of the sample during adsorption of water was recorded continuously until there is no or very small change in the mass measured.

The NIR spectra and their second and fourth derivative profiles of the samples with adsorbed water molecules were obtained using the instrumental software. The second and fourth derivative profiles in the water OH combination frequency region ($5300\text{--}5000\text{ cm}^{-1}$) were used to identify the location of the OH group on the surface. The gravimetric analyses reveal the change in the adsorption characteristics of the silicagel samples. The resolved near infrared spectra and the gravimetric data helped to predict Chemical models to explain water molecular adsorption on the surfaces of solid samples.

Plenary lecture

Current status of Chronic Kidney Disease of unknown etiology in Sri Lanka: causative factors and possible links

Priyani A. Paranagama

Department of Chemistry, University of Kelaniya, Kelaniya, Sri Lanka

Rajarata is the rice bawl of Sri Lanka for over two millennia and during the last two decades, noteworthy numbers of patients with Chronic Kidney Disease of unknown etiology (CKDu) were reported from Rajarata area of Sri Lanka. This has been identified in the 1990s, to be endemic to certain geographical areas of Sri Lanka, including Medawachchiya, Padaviya, Kebithigolawa, Medirigiriya, Hingurakgoda (North Central Province), Nikawewa (North Western Province), Dehiattakandiya (Eastern Province) and Giradurukotte (Uva Province). It is reported that approximately 99 % of CKDu patients are farmers and source of drinking water of CKDu patients are obtained from dug wells (92 %) and tube wells (08 %). Ages of majority of the CKDu patients are between 30 – 40 years and they are heavily exposed to agrochemicals as very little attention is given to hazardous effects on human health.

In the past, several researchers have attempted to explain the etiology of CKDu. Herath et al. (2005) reported that medium to high fluoride content in drinking water caused the CKDu, Bandara et al. (2008) reported that presence of high concentrations of cadmium in drinking water and food as a potential cause of CKDu. Chandrajith et al. (2010) have shown that no such high Cd levels were detected in drinking water and food from the CKDu endemic areas. Later in 2010, it was reported that presence of toxins produced by cyanobacteria in surface waters was the reason for this disease however the results could not bring out a plausible explanation for CKDu to be prevalent only among those who drink groundwater. As such, none of the previous work on the subject could adequately explain the etiology of CKDu. Jayasumana, et al., (2011) have reported that significantly higher percentage

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of CKDu patients showed spotty pigmentations on their soles and palms, high concentrations of arsenic in urine and hair samples collected from CKDu patients. Analysis of organ samples of deceased CKDu patients from the study area also have shown about ten-fold increase of arsenic in comparison to that of kidneys of an unexposed individual. This study was further strengthened by the research findings reported by Jayatilake et al. (2013) from WHO research group as their results revealed that presence of arsenic and cadmium in urine, hair and nail of subjects in the study area and contamination of food with arsenic and cadmium.

The inhabitants in CKDu prevailing areas complained that they observe a significant increase in the hardness of well water over the last two decades. Extents of hardness in groundwater resources of Sri Lanka appear to have a strong positive correlation with the distribution of prevalence of CKDu patients in Sri Lanka. Hardness of water from CKDu prevalence area including 'Gonameriyawa' water spring at Kebithigollewa, a place where no CKDu patients are reported were analyzed. The results revealed that water hardness from CKDu prevalence area were ranged from 300 – 850 mg L⁻¹ and Gonameriyawa water spring in Kebithigollewa showed $6.2 \pm 0.7 - 9.2 \pm 2$ mg L⁻¹. Hardness of water from canals and reservoirs were below 220 ± 5.3 mg L⁻¹. Levels of arsenic and cadmium in water used by CKDu were range from 1.1 µg L⁻¹ - 12.3 µg L⁻¹ and 0.14 µg L⁻¹ – 5.54 µg L⁻¹. The regression analysis of water hardness versus CKDu patients indicated 67.6 % relationship and 82.2 % correlation between two variables was observed. One of the strong evident to indicate the hardness of water is a causative factor for the prevalence of CKDu, is the inhabitants who consume water from Gonamariyawa spring in Kebithigollawa area are not affected from CKDu ($p < 0.05$). Arsenic contents in soil profiles, rice, selected aquatic and terrestrial plants were analyzed in the study areas with a view to understanding the vertical and horizontal (spatial) distribution of arsenic in the environment. The results revealed that all surface soil samples contained total arsenic contents greater than those in the bottom horizons of the soil profiles. Surface layers of soil in paddy fields of Padaviya area were detected to have relatively high levels of arsenic (1.5 mg kg⁻¹) when compared to that of the deep layers (0.61 mg kg⁻¹). No arsenic was detected below 7 feet depth in Padaviya reservoir. Andrew, et al., (2013) reported that the rice

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samples were collected from different parts of the country and amounts of arsenic and cadmium in those rice samples were range from $3.6 \mu\text{g kg}^{-1}$ - $183 \mu\text{g kg}^{-1}$ and $0.5 \mu\text{g kg}^{-1}$ - $800 \mu\text{g kg}^{-1}$ respectively. Analysis of plant species in the endemic area showed that most of the plant species analyzed contained the greater amount of As. In order to investigate the source of arsenic in the environment, agrochemicals available in the retail market of CKDu prevalence area was analyzed. The highest arsenic content was observed in phosphate containing chemical fertilizers used in rice cultivation. The total arsenic content in TSP ranged from 25.49 mg kg^{-1} to 37.86 mg kg^{-1} . Moderate amount of arsenic, ranged from 6.02 mg kg^{-1} to 7.61 mg kg^{-1} was present in the dolomite samples when compared to the phosphate containing fertilizer. The pesticides used in endemic area was tested for As and the results have confirmed the presence of As in the range of $180 \pm 14 \mu\text{g kg}^{-1}$ - $2586 \pm 58 \mu\text{g kg}^{-1}$ and the amount of arsenic present was varied depending on the type of active ingredient, brand and batch of pesticides. The results of the present study revealed that presence of arsenic in the soils and plants, particularly in the agricultural areas gradually decreases with depth, indicating that it is not present naturally in the bedrocks nevertheless has been introduced from the surface, most probably due to anthropogenic activities such as agrochemicals.

Although several research groups were conducting research to explore the etiology of the CKDu during last two decades, the research group from University of Kelaniya and University of Rajarata was invented the effect of arsenic on CKDu for the first time. Hence the study was conducted to find out the source of arsenic in CKDu patients. The results revealed that agrochemicals are the major sources of trace toxic elements in CKDu patients and it was indicated that chronic exposure of people in the endemic area to low levels of arsenic and cadmium through food chain. Sufficient evidence is therefore available to show the effect that wide use of contaminated phosphate fertilizer and pesticides could be the major sources of arsenic and cadmium contamination in the largest rice growing areas of Sri Lanka.

It is recommended therefore that the Secretariat of fertilizer, Department of Agriculture, Ministry of Health in Sri Lanka and other regulatory authorities

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which are responsible for implementation of regulations for control of toxic elements in agrochemicals, may collectively share the responsibility of developing pragmatic strategies to control entry of arsenic / cadmium to the country through imported agrochemicals, especially inorganic phosphate fertilizer through effective monitoring and control measures mediated through appropriate legal and institutional infrastructure. In order to reduce the use of agrochemicals, educational programme should be conducted to promote environmental friendly farming methods and to enhance the public awareness on impacts of hazardous agrochemicals and their use.

Lists of Presentations

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Oral Presentations

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2. Prevalence of Obstructive Sleep Apnea risk among public transport bus drivers in Jaffna, Sri Lanka
Balachandran Gajalaksan , Sundaralingam Lija, Pethirupillai A. D. Coonghe and B. Thirumaran
3. Study of fasting plasma glucose levels in non-diabetic subjects related to selected risk factors for type 2 diabetes
K.N.W. Walatara, M.F.F. Nusha, K. Anusha, L.V. Athiththan, P.P.R. Perera and U.P.K. Hettiaratchi
4. Association of C-reactive protein concentration with weight of patients awaiting Coronary Artery Bypass Graft (CABG)
E.M. Bandara, S. Ekanayake, A.D. Kapuruge and C.A. Wanigatunge
5. Branching pattern of Inferior thyroid artery and its relationship to the recurrent laryngeal nerve in Sri Lankans
Romini Niranjan, Sivananthini Uthayakumar and Surangi G. Yasawardene
6. The distribution of somatotypes and sexual dimorphism among a group of young Sinhalese adults
L.H.L.C. De Silva, H.M.I.U. Herath, W.L.N.S. Samaranayake, S.I. Jayasinghe, P.P.C.K. Gunawardena, A.P.H.M. Ariyawansa, K.K. Wijayarathne, M.A.M. Azam, A.A.H. Supunda, A.K.P. Rathnayake, and J.K. Dissanayake

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7. Influence of body weight, gender and milking interval on venom yield of scorpion *Heterometrus wammerdami* (Simon 1872) (Scorpionidae) from Jaffna peninsula
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8. Comparison of soil-dwelling insect fauna in eco-friendly versus conventional home gardens at selected localities in Hambanthota District
K.S. Hemachandra, B.P.U.R. Bandara, W.A.P. Weerakkody, J.K.S. Wasantha, U.G.A.I. Sirisena, T.D.C. Priyadharshani and J.M. Soorasena
9. Prevalence of ticks and tick-borne blood parasites in selected cattle farms in Mirigama veterinary range, Sri Lanka
W.P.S.N. Wijeweera, K.A.M. Sudarshini and H.C.E. Wegiriya
10. Anti-nociceptive effect of hot water extract of Sudarshana Powder (an ayurvedic formulation) in Wistar rats **(Not presented)**
W.A.S.S. Weerakoon, P.K. Perera, D. Gunasekara and T.S. Suresh
11. Successes and failures of inland fisheries management Ridiyagama Reservoir in Ambalantota, Sri Lanka
S. Devasiri, and S. N. Dushani
12. Production of simulated caviar using readily available freshwater fish species: *Cirrhinus mrigala*
I.G.S.N.K. Abeyrathne, N. P. P. Liyanage, G.G.N. Thushari and S.C. Jayamanne
13. An assessment of heavy salting and salted drying on yield and quality of Talang Queen (*Scomberoides commersonianus*) fish fillets
D.S. Ariyaratna and M.R. Perera
14. Establishment of farmer operated, low cost, simple technology mini hatchery for Genetically Improved Farmed Tilapia (GIFT)
W.A.R.K. Senaarachchi and M.P.K.S.K. de Silva
15. Evaluation of binders for Tilapia fish sausage production and shelf life evaluation in frozen storage
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16. Effect of dietary C18 PUFA on fillet Long Chain concentrations: A comparison between Murray cod and rainbow trout
Thanongsak Thanuthong, David S. Francis, Shyamalie D. Senadheera and Giovanni M. Turchini
17. Length-weight relationship of spiny lobster, *Panulirus homarus* population in Southern coastal region of Sri Lanka **(Not presented)**
J. D. M. Senevirathna, G.G.N Thushari and D.H.N. Munasinghe

Poster Presentations

- A01. Whole grain cereals and Health: Knowledge, Attitudes and Practices of Sri Lankan Adults
G. A. P. Chandrasekara and J. M. L. R. B. Jayalath
- A02. Case burden of Cutaneous Leishmaniasis handled at General Hospital of Matara in Sri Lanka **(Not presented)**
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- A03. Factors affecting compliance to self-management therapeutic exercises in osteoarthritis patients in Sri Lanka **(Not presented)**
Rajitha Sanjeewa and Sisira L. Pathirana
- A04. Anthropometric parameters and attitudes towards physical exercise among breast cancer patients
H. M. K. Akalanka, S. Ekanayake and K. Samarasinghe
- A05. Relationship between anthropometric parameters, socio-demographic characters and physical activity: a cross-sectional study among non-diabetic population
K. Anusha, M. F. F. Nusha, K. N. W. Walatara, U. P. K. Hettiaratchi, P. P. R. Perera and L. V. Athiththan
- A06. Assessment of nutritional status and associated factors among institutionalized elderly in the Galle district
M. A. M. Aasath and C. J. Wijesinghe
- A07. Pattern of consumption of sweetened foods/ drinks by type 2 diabetic patients of a selected study center
S.P.A.S. Senadheera, S. Ekanayake, and C. A. Wanigatunge
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- A08. The effect of herbal porridge made with *Scoparia dulcis* on lipid parameters of type 2 diabetics
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- A09. Association between the anthropometry of mother and newborn from selected Medical Officers of Health divisions of Jaffna District
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- A10. Thrips infesting flowers of cowpea, yard-long bean and mung bean at selected localities in Monaragala district of Sri Lanka
G.M.H.P. Gajjanayaka and W.T.S. Dammini Premachandra
- A11. A preliminary study on spider fauna associated with a mangrove ecosystem in Mandaitivu, Northern Sri Lanka **(Not presented)**
K. Nilani and R. Gnaneswaran
- A12. Range expansion of invasive alien sailfin catfish *Pterygoplichthys* spp. in Sri Lanka
U. P. K. Epa and T. W. A. J. De Silva
- A13. Impact of Glyphosate (Round-up) on the diversity of invertebrate in terrestrial habitats and the Phosphate level of adjacent waters
D.M.L.C. Dissanayaka and M.G.V. Wickramasinghe
- A14. Determination of Species composition of Genus *Lutzia* around Eastern University premises, Vantharumoolai **(Not presented)**
P. Jeyanthini and M. Vinobaba
- A15. Sexual size dimorphism and feeding of *Hydrophis spiralis* (Shaw 1802) occurring along the Vadamardchy coastline of Jaffna, Sri Lanka
Kamalakkannan Rahavan and Abyerami Sivaruban
- A16. Geometric Morphometric analysis of selected populations of *Puntius chola* (Cyprinidae) in Sri Lanka
L.M. Wijesurendra and K.B.S. Gunawickrama
- A17. A Survey of bird diversity in paddy fields in “Kerala-Kele” and Bandaththara, Matara, Sri Lanka
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- A18. Study of ectoparasites associated with wild murid rodents in a selected area in Matara: A preliminary study
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- A19. Growth performance of *Oreochromis mosambicus* fingerlings and of spinach plants grown on two substrates in aquaponic system
H.N.K.S Pathirana and W.A.H.P Guruge
- A20. Growth effects and erythrocyte nuclear abnormalities in juvenile *Oreochromis niloticus* experimentally exposed to crude oil
S.H.N.P. Gunawickrama, M. Panawala, and K.B.S. Gunawickrama
- A21. Market chain assessment of the Blue swimming crab industry in Jaffna, Sri Lanka
S. Sivanthan and M.D.S.T. De Croos
- A22. Nutritional and anti-nutritional contents of alternative plant feed ingredients for fish feed formulation
N. Paranamana, K. Radampola and V. P. Bulugahapitiya
- A23. An assessment of bacterial quality of water, ice and fish in a fishery harbor in Southern Sri Lanka
A.D.I.D. Ranasinha, E. Pathirana and I. Pathirana
- A24. Unforeseen problems experienced in experimental cage culture: lessons for future cage culture
W.A.R.K. Senaarachchi and M.P.K.S.K. de Silva
- A25. Market chain analysis of edible oyster fishery in Sri Lanka: a case study at Putthalam lagoon
M.M. Subasinghe, M.D.S.T.de. Croos and W.M.T.B. Wanninayake
- A26. Investigation of the possibility of utilizing two mitochondrial gene regions to differentiate two *Penaeus* species: A preliminary study
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Session B: Agriculture and Botany

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2. Effects of different natural Organic Additives on *In Vitro* regeneration of radish (*Raphanus sativus L.*) Var. Beeralu Rabu
I.P Manawadu, N Dahanayake and S.G.J.N. Senanayake
3. Allelic diversity and seedling tolerance of some rice (*Oryza sativa*) germplasms under salt stress
B.A. Dahanayaka, N.S. Kottearachchi, D.R. Gimhani and W.L.G. Samarasinghe
4. Egg parasitoids of *Cnaphalocrocis medinalis* (Guenee): the first record of *Trichogrammatoidea bactrae* Nagaraja, and *Trichogrammatoidea nana* Zehntner (Hymenoptera: Trichogrammatidae) in Sri Lanka.
K.S. Hemachandra, A. Polaszek and M. C. D. Perera
5. Salient characters of Weedy rice (*Oryza sativa f. spontanea*) populations in highly infested areas in Sri Lanka
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6. Selection of suitable mango variety for fruit bar preparation
K. Premakumar
7. Heavy metal contamination in soils of a selected mapping unit in dry-zone of Sri Lanka
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8. Identification of potential fertilizer management zones based on the spatial variability of surface soil pH in a vegetable field, Sri Lanka
E. M. S. K. Thilakarathna, W. A. U. Vitharana, S. P. Indraratne, A. Verdoodt, M. Van Meirvenne, T. Saey and W.K.Balasooriya
9. Present status of pesticides usage and level of awareness among farmers in Jaffna peninsula
Keerthika Kanagaratnam, Kandiah Pakeerathan and Gunasingham Mikunthan
10. Phytochemical screening and bacteriological assay of tea samples from upcountry and Low country Sri Lanka
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11. Study on physical, chemical and antioxidant property of pitaya fruit (*Hylocereus undatus*) and to make it as a value added product; a solution to the pitaya cultivators in Sri Lanka **(Not presented)**
A. H. M. Mufas and O. D. A. N. Perera
12. Preliminary evidence of Bermuda grass white leaf (BGWL) phytoplasma associated with rice yellow dwarf disease (RYD) in Sri Lanka
S. Abeysinghe, W. G. S. M. Kumari and M. Dickinson
13. Induced colonization of GFP- labeled Azorhizobium caulinodans ORS 571 in rice roots
Thilini A. Perera and T.L. Shamala Tirimanne
14. Heavy metal pollution effects on photosynthetic characteristics of *Fucus vesiculosus* and *Ulva lactuca*
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Poster presentations

- B01. Evaluation of physicochemical and microbiological properties of instant full cream milk powder kept under bulk storage conditions **(Not presented)**
R. M. Senevirathne, T. S. R. Fernando, and A. R. Dayananda

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- B02. Development of fiber rich soft dough biscuits fortified with kohila (*Lasiaspinnosa*) flour
A.W. Pupulawaththa, O.D.A.N. Perera and A. Ranwala
- B03. Performance of murreh, surti, nili-ravi buffaloes and their crosses in a large scale farm in the intermediate zone of Sri Lanka
B. Christa Charlini and J. Sinniah
- B04. Effects of plant spacing on yields and nutritive values of hybrid Napier grass CO-3 in dry zone of Sri Lanka
P. Sinthika, J. Sinniah, S. Sivaneson and N. Sarmini
- B05. Efficacy of different bio-rationals against papaya mealy bug, *Paracoccus marginatus* (Hemiptera: Pseudococcidae)
A. Piragallathan K. Pakeerathan and G. Mikunthan
- B06. Egg parasitoids of *Trichoplusia ni*: *Trichogramma achaeae* Nagaraja and Nagarkatti 1969, and *Trichogramma chilonis* Ishii (Hymenoptera: Trichogrammatidae) in Sri Lanka
K.S. Hemachandra, A. Polaszek and S.A.A. Singhamuni
- B07. Identification of contaminants in tea (*Camellia sinensis* L.) micro-propagation and standardizing the sterilization protocol
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- B08. Formulation of value added crackers using defatted coconut flour and evaluation of its quality parameters
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- B09. Impact of locally available organic amendments with leaching on pH in a saline soil
T. Mirththika and P. Premanandarajah
- B10. Performance of Broiler chicken fed diets containing different inclusion levels of turmeric (*Curcuma longa* L) rhizome powder as a feed additive
E. Subalini., M. Rameskaran and S. Thanuejah
- B11. Production of functional vinegar from pineapple peel (**Not presented**)
S. Sukirtha, H. P. S. Senarath and C. V. L. Jayasinghe
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- B12. In-vitro screening of *Trichoderma* species against (*Fusarium oxysporum* f. sp. cepae) and (*Colletotrichum gloeosporioides*) on red onion in Jaffna
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- B13. Improvements of Postharvest Quality of Tomato (*Lycopersicon esculentum* Mill.) through preharvest macro and micro nutrient supplementations **(Not presented)**
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- B14. Physico-chemical and sensory properties of fat based edible spreads in Sri Lankan market
K.S. Weerathunga, D. Hettiarachchi and K.D.P.P. Gunathilake
- B15. Impregnation of ethylene scrubbers in paper made from banana fibre delays ripening of 'Ambul' banana
S.M. Gamage, I.G.N. Hewajulige and O.D.A.N. Perera
- B16. Evaluation of some traditional rice cultivars for salinity tolerance in a Yoshida solution
N. G. J. Pradeepika, A. L. Ranawake and S. D. Wanniarachchi
- B17. Development of a cinnamon flavored butter
R.M.C.P. Rathnayaka, P.M.H.D. Pathiraje and O.D.A.N. Perera
- B18. Effect of plant height on yield of traditional rice cultivars
A. L. Ranawake, U. G. S. Amarasinghe, M.J. Hewage and N. G. J. Pradeepika
- B19. Complete Submergence tolerance of some traditional rice cultivars at seedling stage
M.J. Hewage, A.L. Ranawake and S. Subasinghe
- B20. Screening of selected Sri Lankan Rice varieties under non-phosphate fertilizer condition
Y.C. Aluwihare, R. Lelwala, M. Ishan, D. N. Sirisena, W.L.G. Samarasinghe and S.D.S.S. Sooriyapathirana
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- B21. Distribution and density of *Salicornia brachiata* in relation to salinity gradients in the Godavari estuary, India **(Not presented)**
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- B22. Evaluation of antibacterial efficacy of mangrove leaf extracts on fish bacterial pathogens
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- B23. Effect of microbial inoculation on tuber development of potato (*Solanum tuberosum* L.)
A.P. Henagamage, G. Seneviratne, C. Abayasekera and K.M.S. Kodikara
- B24. The influence of nutrient availability on the growth and morphology of *Chromolaena odorata* (siam weed)
Viraj Ranawakage, Champika Ellawala and G.G.T. Chaminda
- B25. Cultivation possibility of Ashwagandha (*Withania somnifera*) to promote as a medicinal crop in Jaffna district **(Not presented)**
Suvanthini Shanmugaratnam, Shyama Thurairatnam and Gunasingham Mikunthan
- B26. Variation of microbial community along a chronosequence of age in Eucalyptus grandis forest plantation and some other land uses in the intermediate zone of Sri Lanka
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- B27. Breaking the seed dormancy in *Phyllanthus emblica* L. (V. Nelli)
S.M.U.P. Mawalagedara, G.A.D. Perera, Y.C. Aluwihare and S.D.S.S. Sooriyapathirana

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K. K. G. U. Hemamali and A.A.F. Nuzra
2. Inhibition effect of Jackfruit (*Artocarpus heterophyllus*) leave extract on the corrosion of Mild Steel in 1 M HCl medium.
M. Edussuriya and U. S. K. Arachchige
3. Phenolic content and antioxidant activities of millet grains as affected by extraction methods and solvents
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4. Qualitative and Quantitative Investigation of Phytochemicals present in the leaves of Thebu, *Costus speciosus*
Vajira P. Bulugahapitiya, and G.A.N.S. Gajaweera
5. A structural model of tRNA (guanine-N1)-methyltransferase by a computational method
C.S. Gangabadage, A.V.R.N. Vithanage and W. Ubhayasekera
6. Synthesis and characterization of bimetallic nanocomposites for conductive coatings
C.T. Lin and Rangika H.W. Gunasekera
7. Mechanochemical treatment for the detoxification of organic pollutants in agricultural wastes
N. Daladawatta and S.H. Wadumethrige
8. Isolation of natural pigments with potential photosensitizing property
A.A.D.D. Amarasinghe, A. S. Dissanayake and S. H. S. Dananjaya
9. Development and optimization of novel liquefaction modified cornstarch wood adhesives
L. A. Panamgama and L. M. M. Prabashini

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10. Development of Novel Catalysts for Fischer-Tropsch Synthesis
S. Ranaweera, W. Henry, M. Rowe, K. Walters, M. White and J. Rodriguez
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A.G.P.N. Lakmal, H.K.S. Kumarasiri, W.M.D.C. Sampath. And K.D.W Nandalal
12. HEC-HMS Model for Runoff Simulation from Tittawella Tank Catchment.
D.S. Sampath, S.B. Weerakoon and S. Herath
13. Effects of CaCl_2 solution on physical, index properties of liner materials
S. Arooran, R. Gobirahavan and L. C. Kurukulasuriya
14. Seismic performance of circular steel bridge piers **(Not presented)**
B. Kiriparan and K. A. S. Susantha
15. Controlled growth of ZnO/SnO_2 mixed nanowires by carbon assisted thermal evaporation process
T. Tharsika, A.S.M.A. Haseeb, S.A. Akbar and M.F.M. Sabri
16. Production of high quality iron ore briquettes using coconut-shell charcoal and ‘aruwakkalu lime’
D.R.D. Kumara, S.P. Guluwita, K.L.S. Weerasinghe, and D.M.C.C.B. Ranaraja
17. Estimating Reservoir Sedimentation using Experimental Approach **(Not presented)**
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18. Solar heat gain in to residential buildings through roof
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Poster Presentations

- C01. Preliminary results of activity guided fractionation of the ethnolic extract of dried flowers of *Aegle marmelos* (belimal)
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- C02. Assessing the efficacy of some commercially available disinfectants and antiseptics
G. H. E. Chandraratne, E. Pathirana and I. Pathirana
- C03. Treatment of highly coloured textile waste water by Fenton and photo Fenton processes
H.P.M.E. Rajapakshage, S. Wanniarachchi
- C04. Fitting distribution to the extreme rainfall in Galle, Sri Lanka
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Session D:

Mathematics, Physics and Computer Science

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2. Preliminary results on the preparation of CdS thin films using electro-deposition technique for applications in CdS/CdTe solar cells.
D. A. Madarasinghe, G.D.K. Mahanama, and W.G.D. Dharmaratna
3. Characterization of Cu₂O layers prepared by Photo-Electrochemical and Electro-deposition methods their applications in electrochemical Solar Cells
M.L.T.B. Jayawantha and G.D.K Mahanama
4. Solid State Photovoltaic Cell made from n-Cu₂O thin films and activated carbon upper electrode
K.A.S.K. Hemachandra and C.A.N. Fernando
5. Measurement of the transverse momentum distribution of Z bosons decaying to dimuons in pp collisions at center of mass energy of 8 TeV .
D. Acosta, D. Bourilkov, G.P. Di Giovanni, A. Kropivnitskaya, K. Mazumdar, N. Wickramage, and W.G.D. Dharmaratna
6. Optimizing growth process of CdS semiconductor thin films for efficiency enhancement in CdS/CdTe solar cells.
K. Paramanathan, M.A.K.L. Dissanayake, G.K.R. Senadeera, C.A. Thotawatthage and P. Ravirajan
7. Inverted Poly (3-hexylthiophene-2,5-diyl) (P3HT):[6,6]-Phenyl C61 butyric acid methyl ester (PCBM) bulk heterojunction Solar Cells with Cadmium Sulfide (CdS) as the Hole Blocking Layer
M. Thanihaichelvan, J. Jeong, Y. Kim and P. Ravirajan

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8. Polymethylmethacrylate based gel polymer electrolyte: An Impedance Spectroscopy study
Y.M.C.D. Jayathilake, K.S. Perera, K.P. Vidanapathirana and L.R.A.K. Bandara
 9. Statistical techniques to improve the quality of rubber hot water bottles
B.M.D. Nimanthika and L.A.L.W. Jayasekara
 10. Example of groups without the strong Invariant Approximation Property
Manoharan Annanthakrishna and Kankeyanathan Kannan
 11. Some Information measures of Power-law Distributions
N. Yapage
 12. Comparison of Artificial Neural Networks and Hidden Markov Model in Landslides Prediction **(Not presented)**
L.D.C.S Subhashini and H.L. Premaratne
 13. Vision Based Intelligent Guidance System For Blind
Suneth Pathirana, Jayathu G Samarawickrama and Asoka S. Karunananda
 14. Investigate ARIMA and ARIMAX Models for Predicting Paddy production in Vavuniya District in Sri Lanka
B.Yogarajah, C. Elankumaran and R.Vigneswaran
 15. Use of Johnson Transformation for Individual and Moving Range Control Charts in Crepe Rubber Manufacturing Process
M. P. Dhanushika, B. M. S. G. Banneheka, Keminda Herath
 16. Generating ARGO Salinity and Temperature Contours in Indian Ocean and predicting desired fish species locations
U. R. S. C. Dharmadasa, Deepani B. Guruge, M. M. R. Prasad and G. N. P. Ariyasinghe
 17. Using software engineering approach to construct a light-weight Java compiler
M.D.K.S Gunathilaka, J.M.W.L Jayaweera, A.M.D.M. Sandaruwan, G. M. Rajakaruna and A. S. Karunananda
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18. Software defect predictions using hyper quad -tree based expectation maximization algorithm **(Not presented)**
K. Kayalvizhi and Meera Gandhi

Poster Presentations

- D01. A low cost electronically controlled multi function dryer
S.H. Samanthi, E.M. Ranatunga and S.S. Abeywickrama
- D02. Use of TiO₂ as electrochromic material with Chitosan gel polymer electrolyte in low cost Electrochromic Smart windows
H.N.M.Sarangika, G.K.R. Senadeera, C. A. Thotawattage and M.A.K.L. Dissanayake
- D03. Preliminary results of noise level measurements inside passenger buses in southern province of Sri Lanka
S.M.N. Sethunga, J.A.P. Bodhika, W.G.D. Dharmaratne
- D04. Recovery enhancement of bogala graphite and production of ultra pure graphite by flotation and leaching processes **(Not presented)**
S. L. Vithanage, L. P. S. Rohitha, N. W. M Balasooriaya and H. M. T. G. A. Pitawala
- D05. Design and construction of a temperature monitoring system for noodles dryer at a local industry
B.H.B.M. De Silva, W. G. D. Dharmaratna, K. K.A.S. Yapa and J.A.P. Bodhika
- D06. Photoelectrochemical characteristics of p-Cu₂O prepared by easy fabrication method
U S Liyanaarachchi, C A N Fernando, K L Foo and U. Hashim
- D07. Design and Construction of a display system for systematic monitoring of the noodles steaming process at a local industry
N.V.D.P.Priyadarshani, W. G. D. Dharmaratna, K. K.A.S. Yapa and J.A.P. Bodhika

- D08. Characteristics of n-Cu₂O/p-CuI Junction Photo-Electrode with Connection to the Solar Energy Conversion Devices
R. D. A. A. Rajapaksha, C. A. N. Fernando, K. L. Foo, U. Hashim and R. G. Balakrishna
- D09. Design and construction of an automated rain gauge
W.W. Rukshan Medis, W.G.D. Dharmaratne, J.A.P. Bodhika and S.S. Abeywickrama
- D10. The Role of Emissivity in Land Surface Temperature Mapping using Remote Sensing Data. **(Not presented)**
Gayantha R. L. Kodikara
- D11. Application of new homotopy analysis method for solving second-order random differential equations **(Not presented)**
S. Bhuvaneshwari
- D12. Semilinear delay evolution equations with nonlinear constraints
H.G.N. Lasitha Padmaprabha and K.C.N. Shanthidevi
- D13. Weighted Bipartite Matching the Hungarian Method
M. T. M. Perera and R. Sanjeewa
- D14. Intrusion Detection of Web Sites with Data Mining Techniques – A Survey
K. P. S. D. Kumarapathirana and Chamari I. Kithulgoda
- D15. Automation of multiple data measurements for computer interface
Mohammed Aazir, F. C. Ragel and M. Sriragavan
- D16. Towards a Simple Secure Electronic Tender Submission, Management Protocol
VinothrajThangarajah and Kasun De Zoysa
- D17. Age Invariant Face Recognition: A Survey
M.K. Sarasi Madushika and S.H.K.K. Gunawickrama
- D18. Sith, Crowdsourced Perception Capturing and Analysis Platform **(Not presented)**
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*Andun S. L. Gunawardana, Prabhath S. Pathirana, Thilini S.T.
Gamage, Sachintha R Ponnampereuma and Shahani M.
Weerawarana*

- D19. Analyzing the Protein Interactions of Pre-eclampsia
S.M. Vidanagamachchi
- D20. An Agent based simulation for the shape adaption of “Coccus” type
bacteria colonies
W.A.Mohotti, K.A. Dilini T. Kulawansa

TECHNICAL SESSION DETAILS

Poster evaluations will be started from 8.30 a.m. at all sessions

Session A

Time	Topic
Chairperson: Professor Mrs. N.J. De S. Amarasinghe Session convener : Assoc. Prof. M.P.K.S.K. de Silva	
8.30	Evaluation of anti-histamine and membrane stabilization potentials of acetone extract of <i>Pleurotus ostreatus</i> W.J.A.B.N Jayasuriya, S.M. Handunnetti, C.A.Wanigatunga , G.H. Fernando, D.T.U. Abeytunga and T.S. Suresh.
8.45	Prevalence of Obstructive Sleep Apnea risk among public transport bus drivers in Jaffna, Sri Lanka Balachandran Gajalaksan , Sundaralingam Lija , Pethirupillai A D Coonghe and B Thirumaran
9.00	Study of fasting plasma glucose levels in non-diabetic subjects related to selected risk factors for type 2 diabetes K.N.W. Walatara, M. F.F. Nusha, K. Anusha, L.V. Athiththan, P.P.R. Perera and U.P.K. Hettiaratchi
9.15	Association of C-reactive protein concentration with weight of patients awaiting Coronary Artery Bypass Graft (CABG) E. M Bandara, S. Ekanayake, A. D. Kapuruge and and C. A. Wanigatunge
9.30 – 10.00	Plenary Lectures-Prof. Priyani Paranagama (Session A) Dr. Harendra Fernando (Session D)
10.00 –10.30	Tea Break
10.30 – 11.30 am	Keynote Speech - Professor S. David Jackson, University of Glasgow, UK
11.45	Branching pattern of Inferior thyroid artery and its relationship to the recurrent laryngeal nerve in Sri Lankans Romini Niranjana, Sivananthini Uthayakumar and Surangi G. Yasawardene

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12.00	The distribution of somatotypes and sexual dimorphism among a group of young Sinhalese adults L.H.L.C. De Silva, H.M.I.U. Herath, W.L.N.S. Samaranayake, S.I. Jayasinghe, P.P.C.K. Gunawardena, A.P.H.M. Ariyawansa, K.K. Wijeyarathne, M.A.M. Azam, A.A.H. Supunda, A.K.P. Rathnayake, and J.K.Dissanayake
Chairperson: Prof. Mrs. Chithra Pathirana	
12.15	Influence of body weight, gender and milking interval on venom yield of scorpion <i>Heterometrus wammerdami</i> (Simon 1872) (Scorpionidae) from Jaffna peninsula K.Veronika, K. Akilan, A.Murugananthan, and T. Eswaramohan
12.30	Comparison of soil-dwelling insect fauna in eco-friendly versus conventional home gardens at selected localities in Hambanthota District K.S. Hemachandra, B.P.U.R. Bandara, W.A.P. Weerakkody, J.K.S. Wasantha, U.G.A.I. Sirisena, T.D.C. Priyadharshani and J.M. Soorasena
12.45	Prevalence of ticks and tick-borne blood parasites in selected cattle farms in Mirigama veterinary range, Sri Lanka W.P.S.N. Wijeweera, K.A.M. Sudarshini and H.C.E. Wegiriya
1.00 -1.45	Lunch Break
1.45 - 2.15 pm	Plenary Lecture – Prof. Neelakanthi Gunawardena (Session B) Professor Alfred A. Christy (Session C)
2.15	Anti-nociceptive effect of hot water extract of Sudarshana Powder (an ayurvedic formulation) in Wistar rats. W.A.S.S.Weerakoon, P.K. Perera, D. Gunasekara and T.S. Suresh
2.30	Successes and failures of inland fisheries management Ridiyagama Reservoir in Ambalantota, Sri Lanka S. Devasiri, S. N. Dushani

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2.45	Production of simulated caviar using readily available freshwater fish species: <i>Cirrhinus mrigala</i> I.G.S.N.K Abeyrathne, N. P. P. Liyanage, G.G.N. Thushari and S.C. Jayamanne
3.00	An assessment of heavy salting and salted drying on yield and quality of Talang Queen (<i>Scomberoides commersonianus</i>) fish fillets D.S.Ariyaratna and M.R.Perera
3.15	Establishment of farmer operated, low cost, simple technology mini hatchery for Genetically Improved Farmed Tilapia (GIFT) W.A.R.K. Senaarachchi and M.P.K.S.K. de Silva
3.30 – 4.30pm	Tea Break / Poster Session
4.30	Evaluation of binders for Tilapia fish sausage production and shelf life evaluation in frozen storage D.D.A.D.U. Deshapriya, A.N. Lalantha and C.V.L. Jayasinghe
4.45	Effect of dietary C18 PUFA on fillet Long Chain concentrations: A comparison between Murray cod and rainbow trout Thanongsak Thanuthong, David S. Francis 'Shyamalie D. Senadheera and Giovanni M. Turchini
5.00	Length-weight relationship of spiny lobster, <i>Panulirus homarus</i> population in Southern coastal region of Sri Lanka J. D. M. Senevirathna, G.G.N Thushari and D.H.N. Munasinghe

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Session B:

Time	Topic
Chairperson: Prof. Asoka Gunawardana Session convener : Dr. Pushpa Abeysinghe	
8.30 -8.45am	Rates of Phosphorus on growth and yield of maize (<i>Zea mays</i> L.) in the dry zone of Sri Lanka D.M.S. Duminda, S.P. Indraratne and D. Kumaragamage
8.45 – 9.00am	Effects of different natural organic additives on In Vitro regeneration of radish (<i>Raphanus sativus</i> L.) Var. Beeralu I.P Manawadu, N Dahanayake and S.G.J.N. Senanayake
9.00 – 9.15am	Allelic diversity and seedling tolerance of some rice (<i>Oryza sativa</i>) germplasms under salt stress B.A. Dahanayaka, N.S. Kottarachchi, D.R. Gimhani and W. L. G. Samarasinghe
9.15 – 9.30am	Egg parasitoids of <i>Cnaphalocrocis medinalis</i> (Guenée): the first record of <i>Trichogrammatoidea bactrae</i> Nagaraja and <i>Trichogrammatoidea nana</i> Zehntner (Hymenoptera: Trichogrammatidae) in Sri Lanka K.S. Hemachandra, A. Polaszek and M. C. D. Perera
9.30 – 10.00am	Plenary Lecture - Professor Priyani Paranagama Dr. Harendra Fernando
10.00 – 10.30am	Tea Break
10.30 – 11.30am	Keynote Speech - Professor S. David Jackson, University of Glasgow, UK
11.45 – 12.00pm	Salient characters of Weedy rice (<i>Oryza sativa</i> f. <i>spontanea</i>) populations in highly infested areas in Sri Lanka S. Somaratne, K. D. K. Karunarathna, S. R. Weerakoon, A. S. K. Abeysekera and O.V.D.S.J. Weeresena
12.00 – 12.15pm	Selection of suitable mango variety for fruit bar preparation K. Premakumar
12.15 – 12.30pm	Heavy metal contamination in Soils of a selected mapping unit in dry-zone of Sri Lanka U. K. P. S. Sanjeevani, S. P. Indraratne, R. Weerasuriya, W. A. U. Vitharana and F. Rosemary

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12.30 – 12.45 pm	Identification of potential fertilizer management zones based on the spatial variability of surface soil pH in a vegetable field, Sri Lanka E. M. S. K. Thilakarathna, W. A. U. Vitharana, S. P. Indraratne, A. Verdoodt, M. Van Meirvenne, T. Saey and W.K.Balasooriya
12.45 – 1.00pm	Present status of pesticides usage and level of awareness among farmers in Jaffna peninsula Keerthika Kanagaratnam, Kandiah Pakeerathan and Gunasingham Mikunthan
1.00 - 1.45pm	Lunch Break
1.45– 2.15pm	Plenary Lecture - <i>Former Professor Neelakanthi Gunawardena</i> <i>Professor Alfred A. Christy</i>
Chairperson: Prof. Rohan Rajapaksha	
2.15 – 2.30pm	Phytochemical screening and bacteriological assay of tea samples from upcountry and Low country Sri Lanka S. K. Jayasinghe, J. A. U. I. Jayasinghe, A. A. F. Nusra , H. B. P. Sandani, P. D. Abeysinghe and R. N. Pathirana
2.30 – 2.45pm	Study on physical, chemical and antioxidant property of pitaya fruit (<i>Hylocereus undatus</i>) and to make it as a value added product; a solution to the pitaya cultivators in Sri Lanka A. H. M. Mufas and O. D. A. N. Perera
2.45 – 3.00pm	Preliminary evidence of Bermuda grass white leaf (BGWL) phytoplasma associated with rice yellow dwarf disease (RYD) in Sri Lanka S. Abeysinghe, S., W. G. S. M Kumari and M. Dickinson
3.00 – 3.15pm	Induced colonization of GFP- labeled <i>Azorhizobium caulinodans</i> ORS 571 in rice roots Thilini A. Perera and T.L. Shamala Tirimanne
3.15 – 3.30pm	Heavy metal pollution effects on photosynthetic characteristics of <i>Fucus vesiculosus</i> and <i>Ulva lactuca</i> W. A. A. D. Lanka Wickramasinghe, Valentine K. Mubiana and Ronny Blust
3.30 – 5.00 pm	Tea / poster Session

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Session C

Time	Topic
Chairperson: Prof. Alfred A. Christy Session convener : Dr. V. Bulugahapitiya	
8.30 -8.45am	Physicochemical and microbiological quality of selected non-carbonated bottled drinking water sold in Southern Province of Sri Lanka K. K. G. U. Hemamali and A.A.F. Nuzra
8.45 – 9.00am	Inhibition effect of Jackfruit (<i>Artocarpus heterophyllus</i>) leave extract on the corrosion of Mild Steel in 1 M HCl medium. M. Edussuriya and U. S. K. Arachchige
9.00 – 9.15am	Phenolic content and antioxidant activities of millet grains as affected by solvents and extraction methods K.D.D. Kumari, G.A.P. Chandrasekara and T. Madhujith
9.15 – 9.30am	Qualitative and Quantitative Investigation of Phytochemicals present in the leaves of Thebu, <i>Costus speciosus</i> Vajira P. Bulugahapitiya, and G.A.N.S. Gajaweera
9.30 – 10.00am	Plenary Lecture - <i>Professor Priyani Paranagama</i> <i>Dr. Harendra Fernando</i>
10.00 – 10.30am	Tea Break
10.30 – 11.30am	Keynote Speech - <i>Professor S. David Jackson, University of Glasgow, UK</i>
11.45 – 12.00pm	A structural model of tRNA (guanine-N1) - methyltransferase by a computational method C.S. Gangabadage, A.V.R.N. Vithanage and W. Ubhayasekera
12.00 – 12.15pm	Synthesis and characterization of bimetallic nanocomposites for conductive coatings C.T. Lin and Rangika H.W. Gunasekera
12.15 – 12.30pm	Mechanochemical treatment for the detoxification of organic pollutants in agricultural wastes N. Daladawatta and S.H.Wadumethrige
12.30 – 12.45pm	Isolation of natural pigments with potential photosensitizing property A.A.D.D. Amarasinghe, A. S. Dissanayake and S. H. S. Dananjaya

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12.45 – 1.00pm	Development and optimization of novel liquefaction modified cornstarch wood adhesives L. A. Panamgama and L. M. M. Prabashini
1.00 – 1.45pm	Lunch Break
1.45 – 2.15pm	Plenary Lecture - <i>Former Professor Neelakanthi Gunawardena</i> <i>Professor Alfred A. Christy</i>
2.15 – 2.30pm	Development of novel catalysts for Fischer-Tropsch Synthesis S. Ranaweera, W. Henry, M. Rowe, K. Walters, M. White and J. Rodriguez
Chairperson: Prof. R.N. Pathirana	
2.30 – 2.45pm	A model simulation for the diversion of Kalu River towards southern Sri Lanka A.G.P.N. Lakmal, H.K.S. Kumarasiri, W.M.D.C. Sampath. And K.D.W Nandalal.
2.45 – 3.00pm	HEC-HMS Model for Runoff Simulation from Tittawella Tank Catchment. D.S. Sampath, S.B. Weerakoon and S. Herath
3.00 – 3.15pm	Effects of CaCl₂ solution on physical, index properties of liner materials S. Arooran, R. Gobirahavan and L. C. Kurukulasuriya
3.15 – 3.30pm	Seismic performance of circular steel bridge piers B. Kiriparan and K. A. S. Susantha
3.30 – 4.30pm	Tea Break / poster Session
4.30– 4.45pm	Controlled growth of ZnO/SnO₂ mixed nanowires by carbon assisted thermal evaporation process T. Tharsika, A.S.M.A. Haseeb, S.A. Akbar and M.F.M. Sabri
4.45 – 5.00pm	Production of high quality iron ore briquettes using coconut-shell charcoal and ‘aruwakkalu lime’ D.R.D. Kumara, S.P. Guluwita , K.L.S. Weerasinghe, and D.M.C.C.B. Ranaraja
5.00 – 5.15pm	Estimating reservoir sedimentation using experimental approach N.M.T.K. Revel, L.P.G.R. Ranasiri, R.M.C.R.K. Rathnayake and K.P.P. Pathirana

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5.15– 5.30pm	Solar heat gain in to residential buildings through roof Roy Sankaranarayana
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Session D

Time	Topic
Chairperson: Prof. W.G.D. Dharmaratna Session convener: Dr. J.A.P. Bodhika	
8.30 -8.45am	A low cost automated device for releasing a certain mass of small seeds or powder materials T.P.Wickramasinghe, E.M. Ranatunga and S.S. Abeywickrama
8.45 – 9.00am	Preliminary results on the preparation of CdS thin films using electro-deposition technique for applications in CdS/CdTe solar cells. D. A. Madarasinghe, G.D.K. Mahanama, and W.G.D. Dharmarathna
9.00 – 9.15am	Characterization of Cu₂O layers prepared by Photo-Electrochemical and Electro-deposition Methods their Applications in Electrochemical Solar Cells M.L.T.B. Jayawantha and G.D.K Mahanama
9.15 – 9.30am	Solid State Photovoltaic Cell made from n-Cu₂O thin films and activated carbon upper electrode K.A.S.K. Hemachandra and C.A.N. Fernando
9.30 – 10.00am	Plenary Lecture – <i>Professor Priyani Paranagama</i> <i>Dr. Harendra Fernando</i>
10.00 – 10.30am	Tea
10.30 – 11.30am	Keynote Speech - <i>Professor S. David Jackson, University of Glasgow, UK</i>
11.45 – 12.00pm	Measurement of the transverse momentum distribution of Z bosons decaying to dimuons in pp collisions at center of mass energy of 8 TeV . D. Acosta, D. Bourilkov, G.P. Di Giovanni, A. Kropivnitskaya, K. Mazumdar, N.Wickramage, and W.G.D. Dharmaratna
12.00 – 12.15pm	Optimizing growth process of CdS semiconductor thin films for efficiency enhancement in CdS/CdTe solar cells.

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	K. Paramanathan, M.A.K.L. Dissanayake, G.K.R. Senadeera, C.A.Thotawatthage and P. Ravirajan
12.15 – 12.30pm	Inverted Poly(3-hexylthiophene-2,5-diyl)(P3HT):[6,6]-Phenyl C61 butyric acid methyl ester (PCBM) bulk hetero junction solar cells with Cadmium Sulfide (CdS) as the hole blocking layer. M.Thanihaichelvan, J. Jeong, Y.Kim and P. Ravirajan
12.30 – 12.45pm	Polymethylmethacrylate based gel polymer electrolyte: An Impedance Spectroscopy study Y.M.C.D. Jayathilake, K.S. Perera, K.P. Vidanapathirana and L.R.A.K. Bandara
12.45 – 1.00pm	Statistical techniques to improve the quality of rubber hot water bottles B.M.D. Nimanthika and L.A.L.W. Jayasekara
1.00 – 1.45pm	Lunch
1.45 – 2.15pm	Plenary Lecture - Former Professor Neelakanthi Gunawardena <i>Professor Alfred A. Christy</i>
Chairperson: Prof. Leslie Jayasekara	
2.15 – 2.30pm	Example of groups without the strong Invariant Approximation Property Manoharan Annanthakrishna and Kankeyanathan Kannan
2.30 – 2.45pm	Some information measures of Power-law distributions N. Ypage
2.45 – 3.00pm	Comparison of Artificial Neural Networks and Hidden Markov Model in Landslides Prediction L.D.C.S Subhashini, L.D.C.S and H.L. Premaratne.
3.00 – 3.15pm	Vision based intelligent guidance system for blind Suneth Pathirana, Jayathu G Samarawickrama and Asoka S. Karunananda
3.15 – 3.30pm	Investigate ARIMA and ARIMAX Models for predicting paddy production in Vavuniya District in Sri Lanka B.Yogarajah, C. Elankumaran and R.Vigneswaran
3.30 – 4.30pm	Tea / poster Session
4.30– 4.45pm	Use of Johnson Transformation for individual and moving range control charts in Crepe Rubber

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	manufacturing process M. P. Dhanushika, B. M. S. G. Banneheka and Keminda Herath
4.45 – 5.00pm	Generating ARGO salinity and temperature contours in Indian Ocean and predicting desired fish species locations U. R. S. C. Dharmadasa, Deepani B. Guruge, M. M. R. Prasad and G. N. P. Ariyasinghe
5.00 – 5.15pm	Using software engineering approach to construct a light-weight Java compiler M.D.K.S Gunathilaka, J.M.W.L Jayaweera, A.M.D.M. Sandaruwan, G. M. Rajakaruna and A. S. Karunananda
5.15– 5.30pm	Software defect predictions using hyper quad -tree based expectation maximization algorithm K.kayalvizhi and Meera Gandhi

NOTES