

IPSL - Newsletter

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The News Letter of the Institute of Physics, Sri Lanka

Volume 17, Issue 1

INSTITUTE OF PHYSICS, SRI LANKA (IPSL)

Vidya Mandiraya, 120/10, Wijerama Mawatha, Colombo 7, Sri Lanka.

Council Members 2023/ 2024

President	Dr. R Chinthaka L De Silva
Past President	Prof. N G Shantha Gamage (Nuclear Science Olympiad Country Coordinator)
Vice Presidents	Prof. H H Sumathipala (SLJSO Country Coordinator)
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	Prof. P A A Perera
	Prof. V P S Perera
	Prof. P K D D P Pitigala
	Prof. W T M A P K Wanninayake
	Dr. D L Weerawarne
	Mr. D L N Jayathilake (Foundation Course in Physics Coordinator)
	Prof. S R D Rosa (Physics Olympiad Country Coordinator)

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IPSL Highlights - 2023

IPSL Webinar Series

It was decided by the council to conduct webinar in each month of the year 2023 by inviting a professional in Physics related field. Objective of this webinar series to promote Physics and its applications and also to aware the public on hot key topics related to science and technology. It was started in November 2020 and the webinars for 2023 were continued in each month except on February.



Resource persons of IPSL Webinar Series 2023/2024

1. Dr.(Eng.) B G D Achintha Madusanka
2. Dr. Hasintha Mahabaduge
3. Prof. Prafulla K Jha
4. Dr. Rusiri Rathnasekara
5. Capt. Harsha G Koralearachchi
6. Dr. G W Chithrani Wijayasundara
7. Eng. Niroshan Kiriwella
8. Dr. Lilani Attygala
9. Dr. Vijayanka P Fernando
10. Dr. Hansika Atapattu
11. Eng. Gihan Weerasekara
12. Dr. R Thanuja Sooriyagoda

43rd Annual General Meeting

The 43rd Annual General Meeting of the Institute of Physics Sri Lanka was held on 25th March, 2023 at the Senate Board Room in the University of Sri Jayawardenepura. New office bearers and the members of the Council were unanimously elected for the year 2023/2024.

Dr. R Chinthaka L De Silva was elected as the President. He expressed his gratitude towards all the council members for appointing him as the President of IPSL for the year 2023/2024. He also conveyed his appreciation to the former president, Prof. N G S Shantha Gamage, for his exceptional service to IPSL over the last two years 2021/2022 and 2022/2023.

Dr. Chinthaka De Silva expressed his willingness to organize several activities to uplift the status of IPSL in the coming year while requesting the support of all the council members for future events.

39th Technical sessions - Papers presented

The 39th technical sessions of the Institute of Physics, Sri Lanka was held on the 25th of March, 2023 at the Senate Board Room, University of Sri Jayawardenepura, Nugegoda. Nine (09) papers were presented within three sessions. Prof. W K I L Wanniarachchi chaired the Session I from 0920h to 1020h, Prof. P K D D P Pitigala chaired the Session II from 1040h to 1200h and Prof. P A A Perera chaired the session III from 1300h to 1420h.

Ten research papers were received and nine were accepted for oral presentations at the 39th Technical Sessions, after reviewing each and every paper by two reviewers. Nine papers were recommended for the Sri Lanka Journal of Physics (SLJP) by the reviewers. Only the abstracts of those papers were published in the proceedings of the Technical Sessions.

The papers accepted for the oral presentations and the programme for the Technical Sessions on 25th March, 2023 are given below.

Technical Presentations

Session I (0920h—1020h) - Session Chairman: Dr. W K I L Wanniarachchi

1. Analyzing Heart Rate Variability of Arrhythmia Patients Using Wavelet Transformation

T.G.S.V. Perera, N.G.S.S. Gamage

2. Studying microseismicity in the central part of Sri Lanka using Waveform Cross-Correlation

K.K.D.A.C. Karunarathne, N.G.S.S. Gamage

3. Borophene as an anode material for metal-ion Batteries

W.A.N.L. Perera, W.W.P. De Silva

Session II (1040h—1200h) - Session Chairman: Prof. P K D D P Pitigala

4. Computational Investigation of e⁺BeO system: Atom-centered Gaussian type positronic basis set development for low-cost calculations

G.S.K. Gamage, D.D.C. de S. Wanniarachchi, R.S. Jayakody, W.K.I.L. Wanniarachchi

5. Doped ZnO Thin Films for Detection of Harmful Gases in Environment

R.A.U.D. Ranasinghe and P.W.S.K. Bandaranayake

6. **Synthesis and Characterization of composite with reduced graphene oxide and rubber: A value addition to Sri Lankan natural vein-graphite and rubber industries**
D.N.P.I. Chathuranga, N.G.S.S. Gamage, R.C.L De Silva, A.M.K.L. Abeykoon, H.C.D.P Colombage, M.H.T. Dulajl, L.D.C Nayanajith, and I.R.M Kottegoda
7. **Fabrication of Copper (I) Oxide (Cu₂O) thin films on Transparent Conductive glass substrate**
L. W. P. M. Madusanka, P. K. D. D. Pitigala, C. A. N. Fernando, P. G. D. C. K. Karunarathna
- Session III (1040h—1200h) - Session Chairman: Prof. P A A Perera**
8. **Development of a low-cost Gelsight Sensor for surface geometry extraction and detecting the direction of motion of an object**
L.A.Dannoruwa, R.A.D.D.Dharmasiri, W.K.I.L.Wanniarachchi
9. **Fabrication of Dye-Sensitized Solar Cell Using Natural Dye Extracted from Elaeocarpus Serratus Red Leaf**
S. Davisan, G.M.L.P Aponsu, V.P.S. Perera

IPSL Council - Year 2023/2024

The Council photograph was taken for the Year 2023/2024 on 16th March 2024.



Seated L to R:

Dr. U S Rahuabadda (J/Secretary), Dr. R Thotagamuge (Co-Editor), Prof. H H Sumathipala (Vice President/ SLJSO Country Coordinator), Mr. C M Kalansuriya (Asst. Treasurer), Prof. N G S Shantha Gamage (Immediate Past President/SLNSO Country Coordinator), Dr. R Chinthaka L De Silva (President), Prof. S R D Rosa (SLPO Country Coordinator), Prof. W K I L Wanniarachchi (Treasurer), Prof. K P S C Jayaratne (Astronomy/Astrophysics Country Coordinator), Mr. G H Asoka (Co-Editor), Dr.(Mrs.) W W P De Silva (J/Secretary)

Standing L to R:

Prof. P A A Perera (SLJP Journal Editor), Mr. D L N Jayathilake (Foundation Course in Physics Coordinator), Prof. V P S Perera, Prof. P K D D P Pitigala, Dr. D L Weerawarne

Absent:

Dr. (Ms.) H O Wijewardane (Vice President), Prof. D D N B Daya, Dr. W T M A P K Wanniniyake

Prof. Mailvaganam Memorial Oration - 2023



Prof. A W Mailvaganam Memorial Oration 2023 was held on 08th December 2023 at the New Physics Lecture Theatre (NPLT), University of Colombo. It was delivered by Senior Prof. S R D Kalingamudali, Dean, Faculty of Science, University of Kelaniya,

The topic was about “ *Utilising fundamental scientific concepts for the development of inventions, innovations & commercialization*”.



One of the top 100 Scientists in Asia — 2023

Congratulations !!

Prof. Chandana Jayaratne



has been recognized as one of the top 100 scientists in Asia for the year 2023



Institute of Physics, Sri Lanka

Best Undergraduate Physics Research Project Award — 2023



The evaluation panel recommended the name of Ms. M G M T Karunathilake, Department of Physics & Electronics, University of Kelaniya for the Best Undergraduate Physics Research Project Award where the council approved the decision.

Prof. V P S Perera, Prof. P K D D P Pitigala, & Dr.(Ms.) H O Wijewardane were served as the judges for the evaluation panel and the evaluation was done prior to the council Meeting on the same day where Dr. Wasanthi De Silva was serving as the convener.

Sri Lankan Olympiad Competitions - 2023

The IPSL conducts four local Olympiad competitions;

- (i) Sri Lankan Physics Olympiad Competition
- (ii) Sri Lankan Astronomy and Astrophysics Olympiad Competition
- (iii) Sri Lankan Junior Astronomy Olympiad Competition
- (iv) Sri Lankan Junior Science Olympiad Competition,

and newly added,

- (v) Sri Lankan Nuclear Science Olympiad Competition

at the National level with the aim of promoting Physics, Astronomy, and Science among school children.

These Olympiad competitions are conducted annually by the IPSL in collaboration with the Department of Physics, the University of Colombo, University of Kelaniya and University of Sri Jayewardeneepura. Applications were called from school children who wish to participate in these Olympiad competitions, and they are generally held in all three languages (Sinhala/Tamil/English) at the examination centers located at the Departments of Physics in the Universities of Colombo, Eastern, Jaffna, Kelaniya, Sri Jayewardeneepura, Peradeniya, Ruhuna, Wayaba, Open University, Uwa Wellassa, and Vavuniya.

The 17th Sri Lankan Physics Olympiad Competition, the 15th Sri Lankan Astronomy and Astrophysics Olympiad Competition, and 11th Sri Lankan Junior Astronomy Olympiad Competition were held on 17th September 2023. The 04th Sri Lankan Junior Science Olympiad competitions was held on 29th December 2023.

The four national coordinators of the respective Olympiad competitions are Prof. S.R.D.Rosa (National Coordinator/Physics Olympiad), Prof. K P S C Jayaratne (National Coordinator/Astronomy and Astrophysics Olympiads), and Prof. H H Sumithipala (National Coordinator Sri Lankan Junior Science Olympiad competitions). Prof. N G S Shantha Gamage (National Coordinator Sri Lankan Nuclear Science Olympiad competitions).

Sri Lankan Physics Olympiad — 2023

From the year 2005, the Institute of Physics conducts an island -wide competition called “Sri Lankan Physics Olympiad” to recognize and promote Physics among A/L students. The Sri Lankan Physics Olympiad Competition – 2023 was held on 17th January 2024 from 9.00 am to 11.00 am at the Universities of Colombo, Kelaniya, Ruhuna, Rajarata (Mihintale), Jaffna, and the Open University Centers at Kandy (Polgolla) and Batticaloa.

Gold, Silver, and Bronze medals and Certificates of Merit were presented to the winning students at the national level in a ceremony at the Faculty of Science premises of the University of Colombo. A maximum of eight students who did well in the national competition would be selected to participate in Asian Physics Olympiad (APhO), 2024 (the country not known yet).

Sri Lankan Astronomy and Astro Physics Olympiad—2023

The institute started the National Astronomy and Astrophysics Olympiad competition in 2007 and the Sri Lankan Junior Astronomy Olympiad in 2011 with the aim of popularizing Astronomy and Astrophysics, and to attract bright high school students all over the country to Science and especially towards Astronomy and Astrophysics.

The 15th Sri Lankan Astronomy and Astrophysics Olympiad competition and the 11th Sri Lankan Junior Astronomy Olympiad competition are organized by the Institute of Physics, Sri Lanka, in collaboration with the Department of Physics, the University of Colombo in association with the Sri Lanka Astronomy Olympiad Association. The competition was held on, 17th January 2024.

Gold, Silver, and Bronze medals and Certificates of Merit were presented to the winning students at the national level in a ceremony at the Faculty of Science premises of the University of Colombo. In addition, students who have won Gold, Silver, and Bronze medals in the above two Olympiads would be able to represent the national team/teams in the International Astronomy Olympiads due in 2024 (participation would be decided based on the situation of the country). For this purpose, a maximum of five students with the highest marks obtained at the second examination conducted for medal winners would be selected.

The Sri Lankan Junior Science Olympiad 2023 competition was conducted with 570 candidates.

Sri Lankan Junior Science Olympiad -2023

At the Olympiad award ceremony, 14 Gold medals, 29 Silver medals, 39 Bronze medals were presented. Forty nine Merit certificates was sent. The international Junior Science Olympiad (IJSO-2022) was selected based on the students' performance.

Participation at the 20th International Junior Science Olympiad -2023

The following team consisting of three subject leaders and six student contestants participated in the 20th International Junior Science Olympiad (IJSO- 2023) held during 1-10 December 2023 Bangkok, Thailand.

Prof. H H Sumathipala (Country Coordinator &, Leader - Physics), Prof. Mangala Ganehiarachchi (Leader -Biology), Dr. Chamila Kadigamuwa (Leader - Chemistry), T D Wickramaratna, Lokitha Kodikara and Nadula Nimnaka Richmond College, Galle, V Sriram and S Vishaal, Jaffna Hindu College, M Jathurshan, Tamil Madya Maha Vidyalaya, Vavuniya.

Highlights of success at the IJSO 2023:

Medal Achievements: T D Wickramaratna, Richmond College, Galle (silver medal), V Sriram, Jaffna Hindu college (bronze), M Jathurshan (Tamil Madya Maha Vidyalaya, Vavuniya (bronze medal). Nadula Nimnaka, Lokitha Kodikara, Richmond College, Galle, and S Vishaal, Jaffna Hindu college also performed well at the competition.

Team Collaboration- Problem-Solving Skills: Our students exhibited excellent teamwork, fostering a spirit of collaboration and camaraderie throughout the competition and also demonstrated outstanding problem-solving abilities.



Sri Lankan Nuclear Science Olympiad -2023

In order to participate the above competition and uplift the Nuclear Science and Technology Education at the Secondary and Tertiary Level in Sri Lanka, Sri Lankan Nuclear Science Olympiad (SLNSO) competition started and would be conducted annually by the Institute of Physics Sri Lanka (IPSL). The SLNSO is open for Students following A/L Science. The best students would have received medals and certificates from the Institute of Physics, Sri Lanka. Based on the marks obtained from this local competition, the best students would be selected to participate in the International Nuclear Science Olympiad (INSO).

The newly established International Nuclear Science Olympiad (INSO) is an annual international science competition for secondary school students younger than 20 years old on 31st of August of the competition year. It would be hosted by an Asian country and launched in August 2024 under the framework of the International Atomic Energy Agency (IAEA) technical cooperation project "Supporting Nuclear Science and Technology Education at the Secondary and Tertiary Level". The International Nuclear Science Olympiad (INSO) Steering Committee and International Juries have been established to work together towards piloting an International Nuclear Science Olympiad on 2024, followed onwards annually.

Several training and workshop would have organized by IPSL for students and School Teachers in collaboration with Sri Lanka Atomic Energy Board and International Atomic Energy Agency (IAEA).

Foundation Course in Physics - 2022/2023

An academic board was appointed to release the results of the examinations of the first two batches (2022/2023) of the Foundation Course. All the council members served as members of the academic board. A special Academic board meeting was held with the President/Chair of the board, on 13th March 2024 to approve the certificate and results of the first two batches.

Advertisements for the new students of the 4th batch were prepared and published online. The closing date of the application was the end of January 2024.

Physics Workshops/Seminar

1. Physics Practical Workshop



A fund raising A/L Physics practical workshop was done for the first time by IPSL which aimed at providing practical training and hands-on experience for the participants who are to sit for the 2023 GCE A/L exam. The one day paid workshop was done on 17th of October 2023 by reserving the SLAS Auditorium emanated a robust response with 90 participants. The instruction book was printed in both English and Sinhala mediums and was distributed among the participants as printed materials for the workshop. Teams from UOC carried out demonstrations.

2. Seminar on Properties of Materials



A Seminar on Properties of Materials was done on 07th December 2023 for the Students of Mahanama College, Colombo organized by the IPSL and the resource person was Prof. V P Susira Perera. Participation included the students of Mahanama College as well as students from nearby schools. The Program was organized as per the request of the Science Society of Mahanama College and the venue was the Mahanama College auditorium.

3. World Metrology Day 2023 workshop



A Workshop to commemorate World Metrology Day 2023 with the theme “*Measurement supporting the global food system*” was held on 23rd May 2023 as Part I for the university Students organized by the IPSL and the collaborations with Sri Lanka Standards Institution (SLSI) & Industrial Technology Institute (ITI) at SLSI Auditorium. Part II held as a webinar on 09th June 2023. In addition to the SLSI & ITI lecturers, Mr. Abhaya Senaviratne, Consultant Packaging was delivered a lecture. A certificate was issued to the participants. Infrastructure facilities were provided by Mr. Kulathunga Rajapakse, Chairman, DSI Group of Companies.

4. Guest Talk



Dr. R Chinthaka L De Silva, President IPSL delivered the Key note speech titled “*Opportunities and potential applications of futuristic Graphene nano material*” at the ECCENTRICITY'23 Science Day of Mahanama College.

OPA Membership - 2023/2024

The OPA membership was renewed for the year 2024. Dr. R Chinthaka L De Silva, Prof. K P S C Jayaratne and Prof. N G S Shantha Gamage represents IPSL at OPA General forum and other sub committees.

Publications

1. Sri Lankan Journal of Physics (SLJP)

Two issues of the Volume 24 of the Sri Lankan Journal of Physics have been published online on the IPSL website and in the Sri Lankan Journal Online (SLJOL) system during the year 2023. Altogether ten articles (eight research articles and two review articles) were published in Volume 24 of the journal. This includes one article which was originally submitted for the 29th Technical Sessions of the IPSL, and then published as a Review Article based on reviewers' comments. The Editorial Board of the SLJP, served during the year 2024, is as follows.

Editorial board/ Sri Lankan Journal of Physics

Editor in Chief:	Prof. P A A Perera, University of Kelaniya
Associate Editors:	Prof. W G D Dharmaratne, University of Ruhuna
	Prof. K P S C Jayaratne, University of Colombo
	Prof. J K D S Jayanetti, University of Colombo
	Prof. D U J Sonnadara, University of Colombo
	Prof. W L Sumathipala, Emiritus Professor, Open University of Sri Lanka
	Prof. V P S Perera, Open University of Sri Lanka
	Prof. C P Abeyratne, University of Sri Jayewardenepura
	Prof. L B D R P Wijesundera . University of Kelaniya
	Prof. A G U Perera, Georgia State University, USA
	Prof. R C Woods, Louisiana State University, USA
Ex-Officio:	Dr. R Chinthaka L De Silva, Institute of Industrial Technology, Colombo7
Copy Editor:	Prof. P S Hewageegana, University of Kelaniya

2. IPSL Physics Magazine

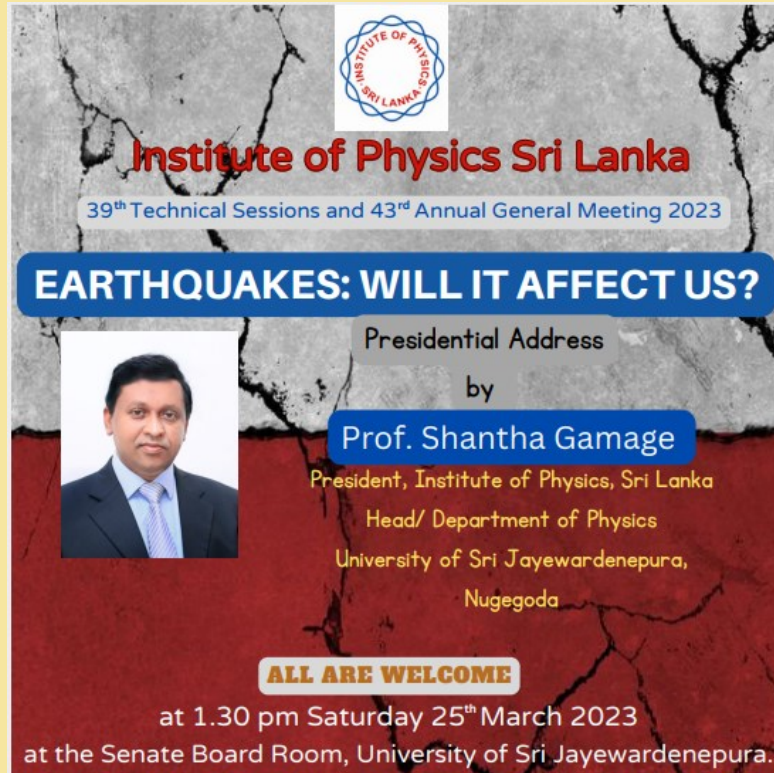
As per a new initiation of the president with the aim of spreading physics efficiently among a wider audience using a new dimensional approach IPSL Physics Magazine with the theme "Uncovering the Origins of Universe" was published with an Online ISSN 3021-6710. It was officially published at a ceremony before the Prof. Mailwaganam Memorial Oration 2023 by the gracious hands of Prof. K P S C Jayaratne and Prof Professor S R D Kalingamudali. The Magazine contains both English and Sinhalese Physics Articles.

Editors: Dr. R Chinthaka L De Silva, Prof. K P S C Jayaratne. **Editor-Graphics:** Dr. D L Weerawarne,

Editorial Board: Dr.(Mrs). W W P De Silva, Dr. W K I L Wanniarachchi, Prof. P K D D P Pitigala, Dr. U S Rahubadda, Mr. C M Kalansuriya, Dr. R Thotagamuge, Mr. G H Asoka, Mr. D L N Jayathilake, Dr. W T M A P K Wanninayake

Expert Panel: Prof. H H Sumathipala, Prof. V P S Perera, Prof. P A A Perera, Prof. N G S Shantha Gamage, Dr. (Ms) H O Wijewardane, Prof. D D N B Daya

Sponsorships: Sakura Graphite and Blue Bay Mineral International (Pvt) Ltd., Gamma Interpharm (Pvt) Ltd, Colper Laboratory Equipment.



Institute of Physics Sri Lanka
39th Technical Sessions and 43rd Annual General Meeting 2023

EARTHQUAKES: WILL IT AFFECT US?

Presidential Address
by
Prof. Shantha Gamage
President, Institute of Physics, Sri Lanka
Head/ Department of Physics
University of Sri Jayewardenepura,
Nugegoda

ALL ARE WELCOME
at 1.30 pm Saturday 25th March 2023
at the Senate Board Room, University of Sri Jayewardenepura.

The Annual Get-together & Dinner - 2023

The IPSL Members' Annual Get-together & Dinner 2023 took place at OPASL Restaurant, located at 275, 75 Prof. Stanley Wijesundera Mawatha, Colombo 07 on 8th December 2023. 40 participants attended.

