



# IPSL - Newsletter

December – 2021

The News Letter of the Institute of Physics, Sri Lanka

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## INSTITUTE OF PHYSICS, SRI LANKA (IPSL)

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

### Council Members 2021/2022

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## IPSL Highlights - 2021

### IPSL Webinar Series

It was decided by the council to conduct webinar in each month of the year 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 2021 were continued in each month except on February.



### Resource Persons of IPSL Webinar Series 2021

- |                                     |                                |
|-------------------------------------|--------------------------------|
| 1. Prof. Ranga Dias                 | 7. Dr. Chalani Abeywardena     |
| 2. Dr. P. K. D. P. Duleepa Pitigala | 8. Dr. Ranjith Divigalpitaya   |
| 3. Dr. Rasika N. Mohottige          | 9. Dr. Chandima Ellawala       |
| 4. Dr. Aruna Ranaweera              | 10. Dr. Madhuranga Thilakasiri |
| 5. Prof. Mohamed Henini             | 11. Dr. Dinuka Gallaba         |
| 6. Dr. Shayamila Gamage             |                                |

## 41<sup>st</sup> Annual General Meeting

Initially, Council decided to hold the 37<sup>th</sup> Technical Sessions and the 41<sup>st</sup> AGM of the IPSL on March 20, 2021 at the Auditorium, Sri Lanka Association for the Advancement of Science, Colombo 07. Due to the Covid 19 pandemic, it was decided to conduct the AGM and Technical sessions under specific health guidelines.

New office bearers and the members of the Council were unanimously elected for the year 2021/2022.

Prof. NGS Shantha was elected as the President. He thanked the immediate past president Prof. VPS Perera and all the council members for extending their fullest support in all the activities conducted by the Institute of Physics Sri Lanka in the past year. Finally, the president sought dedicated support from the newly elected council members to carryout the IPSL activities forward in 2021/2022.

## Papers Presented at the 37<sup>th</sup> Technical Sessions

Twenty one research papers were received and sixteen were accepted for oral presentations at the Technical Sessions, after reviewing each and every paper by two reviewers. Five 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 session. The papers accepted for oral presentations and the programme for the Technical Sessions on March 20, 2021 are given below.

### Technical Presentations

#### Session I (0830-1000 hrs) - Session Chairman: *Dr R C L De Silva*

1. **Rainfall Forecasting in Sri Lanka Using ANN-Case study for Colombo.**  
*T.D.L Gayanga, R. D. Hettiarachchi*
2. **Satellite-based remote sensing as a tool to monitor vehicle usage: A case study in Sri Lanka.**  
*Hasith E Perera and Hiran H E Jayaweera*
3. **Detection of ionizing radiation using simple instruments**  
*P.B.B. Weligampola, C.P. Jayalath and T.P. Ranawaka*
4. **Analysis of material properties of offshore-sand sludge in Muthurajawela: A case study**  
*C. Niroshan, S.A.D.A.S. Suraweera, S.S.K Muthurathna, P.K.D.D.P. Pitigala*
5. **Design and construction of a cooling system using a Peltier based thermoelectric device.**  
*Udaya Rahubadde, Hasith Hewainna*
6. **First Principle Study of Alkaline Metal Intercalation in Twisted Bilayer Graphene**  
*N K R Perera, K M Abeywickrama, W W P De Silva*

#### Session II (Abstracts): (1030-1200 hrs) - Session Chairman: *Prof. P A A Perera*

7. **Physical Characterizations of Casein by Using Electrochemical and Spectroscopic Techniques**  
*T.R. Senevirathne\*, G.C. Wickramasinghe, V.P.S Perera and K.T. Hettiarachchi*
8. **Effects of Acidification of Clove Fruit Dye Extracted in Water and Ethanol for Performance Enhancement of DSSCs**  
*D.T.B. Herath, G.C. Wickramasinghe, G.M.L.P. Aponsu and V.P.S. Perera*
9. **The effect of surface plasmon resonance on the photovoltaic properties of CdS quantum dot sensitized solar cells**  
*W.I. Sandamali, G.K.R. Senadeera\*, M.A.K.L. Dissanayake, T. Jaseetharan, V.P.S. Perera, J.C.N. Rajendra, N. Karthikeyan and L.A. Wijenayaka*
10. **Fabrication of P3HT/PCBM Inverted Solar Cells with ZnO electron transport layer**  
*R. M. Geethanjana Wanigasekara, D. G. K. K. Namawardana, W. T. M. A. P. K. Wanninayake, K. M. D. C. Jayathilaka, R. P. Wijesundera, W. Siripala*
11. **Fabrication of Size-tunable Graphitized Carbon Spheres with hierarchical surface morphology on p-Si (100) by Chemical Vapor Deposition**  
*B.V.N. Sewwandi, A.R. Kumarasinghe\*, D. Thushara, R. Weerasooriya*
12. **Graphene based Piezoresistive strain sensor for human body motion detection**  
*PGKA Perera, HPTS Perakotuwa, AAN Prabhath, DDNB Daya, Vimukthi Jayaweera*

Session II (1300-1445 hrs) - Session Chairman: *Prof. S R D Kalingamudali*

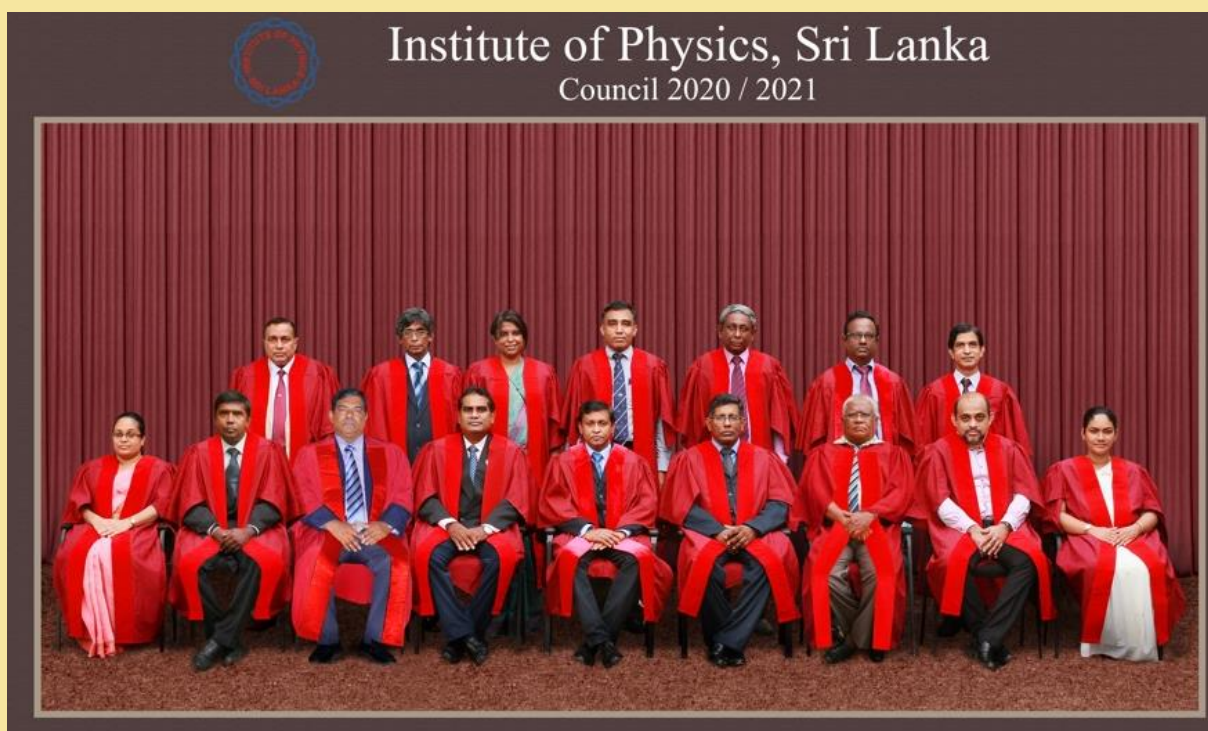
13. **Development of a Cost-Effective and Reliable Spin Coating Device Promoting Local Enterprises to Meet the Research Needs.**  
*G.W.M.D. De Silva, P.G.T.R. Payagala, C.K. Edirisinghe, G.D. Illeperuma and V.P.S. Perera*
14. **Fabrication of P3HT: PCBM Inverted Organic Solar Cells.**  
*D. G. K. K. Namawardana, R. M. Geethanjana Wanigasekara, W. T. M. A. P. K. Wanninayake, K. M. D. C. Jayathilaka, R. P. Wijesundera\*, W. Siripala*
15. **Growth of ZnO thin films on Mo substrate for PV applications.**  
*W. T. R. S. Fernando, K. M. D. C. Jayathilaka, R. P. Wijesundera and W. Siripala*
16. **Fabrication of Magnesium ion Rechargeable Battery Using Dolomite as the Cathode Material**  
*A. M. U. S. Atthanayake, C. N. Nupearachchi and V. P. S. Perera*

**President's Talk 2021**

*Prof. V. P. S. Perera (President 2019/2020 & 2020/2021)*

## New Council

The Council photograph was taken for the year 2021/2022 on 03rd December 2021.



Seated Row (L-R): Dr. (Mrs.) WWP De Silva (Joint Secretary), Mr. GH Asoka (Co-Editor), Mr. DLN Jayathilake (Assistant Treasurer), Dr. RCL De Silva (Vice President), Prof. NGSS Gamage (President), Prof. VPS Perera (Immediate Past President), Prof. HH Sumathipala (Vice President), Prof. PKDDP Pitigala (Treasurer), Dr. (Mrs.) CN Nupearachchi (Co- Editor)

Standing Row (L-R): Prof. KPSC Jayaratne (Council Member), Prof. DDNB Daya (Council Member), Dr. (Ms.) HO Wijewardana (Council Member), Dr. US Rahubadda (Council Member), Mr. C Kalansuriya (Council Member), Dr. WTMAPK Wanninayake (Council Member), Prof. PAA Perera (Council Member)

In Absentia : Dr. G Illeperuma (Joint Secretary), Prof. SRD Rosa (Co-Opted Council Member)

## Prof. A. W. Mailvaganam Memorial Oration —2021

Professor A.W. Mailvaganam Memorial Oration 2021 was held on 03rd December 2021 at the New Physics Lecture Theater (NPLT), University of Colombo. It was delivered by Prof. Chandana Jayarathne, Head, Department of Physics, University of Colombo. The topic was about ‘Space Weather and Its Effect on the Earth’.



## Sri Lankan Olympiad Competitions

The IPSL conducts four local Olympiad competitions namely; the Sri Lankan Physics Olympiad Competition, the Sri Lankan Astronomy and Astrophysics Olympiad Competition, the Sri Lankan Junior Astronomy Olympiad Competition and Sri Lankan Junior Science Olympiad Competition at National level in view of promoting Physics, Astronomy and Science among school children.

The above competitions are conducted annually by the IPSL in collaboration with the Department of Physics, University of Colombo and Kelaniya. Applications are called from school children those who wish to participate at these competitions, and competitions are held in all three languages (Sinhala/Tamil/English) at the examination centres at University of Colombo, University of Sri Jayewardenepura, University of Kelaniya, University of Jaffna, Vavuniya Campus, University of Ruhuna, Open University (Colombo, Batticaloa, Polgolla), Rajarata University, Wayamba University and Uva Wellassa University.

Those who excel in these national competitions are awarded medals and certificates at national level. Moreover, a maximum of five selected students who excelled at the National Olympiad competitions will be sent to the respective International Olympiad competitions after being given a vigorous training. The three national coordinators of the respective Olympiad competitions are Professor S.R.D. Rosa (National Coordinator/Physics Olympiad), Professor K.P.S.C. Jayaratne (National Coordinator/Junior Astronomy Olympiad and Astronomy and Astrophysics Olympiad) and Professor H.H. Sumathipala (National Coordinator/Junior Science Olympiad).

Six students were selected for Sri Lanka Junior Science Olympiad (SLJSO) where all arrangements were made by Prof. H. H. Sumathipala to conduct IJSO 2021 at Wet Resort Hotel from 12th -21st December. The contestants participated the international Olympiad in UAE via online mode. Prof. P. A. A. Perera contributed to moderate the examination paper.

Sri Lankan students were able to win one silver and two bronze medals for the first time in history.

## Foundation Course in Physics

The lectures and practicals of the Foundation course in Physics were conducted online via Zoom due to Covid 19 situation and final examinations were held. The original certificates of the last batch were distributed among the passed participants.

The programme will be advertised for the next intake in 2022.

## OPA Membership

Institute of Physics Sri Lanka became a member of the Organization of Professional Associations (OPA) from December 2019. The membership was renewed for 2021. The president and Prof. KPSC Jayaratne of IPSL represent the Executive Council of OPA were nominated for this year..

## Best Undergraduate Physics Research Project Award

In recognition of the growing significance of science and technology, and with the aim of strengthening research skills of undergraduates in the field of physics education, an annual competition for Best Undergraduate Physics Research Project Award is organized for university undergraduates in Sri Lanka, by the Institute of Physics, Sri Lanka.

IPSL had received 15 applications this time. A panel consisting of following members were appointed for the evaluation of the projects; Prof. P A Perera (Chair of the panel), Prof. K P Vidanapathirana, Prof. V P S Perera, Prof. D D N B Daya and Dr. (Ms.) H O Wijewardane. Evaluation was conducted via zoom, on 6 th June 2021, from 8.45 a.m. to 3.00 p.m.

The winner of the Best Undergraduate Physics Research Project 2019/2020 was Mr. D U Hettiarachchi from University of Peradeniya with the research title Recyclable Magnetic MgO Nanoadsorbents for Effective Removal of Pb(II).

## IPSL Website

The template of the IPSL website has been changed adopting a new theme and new web site of the IPSL has been launched in February 2021.

## Publications

### Proceedings of the Technical Sessions

The Council published the Proceedings of the 37<sup>th</sup> Technical Sessions of the IPSL (March 2021) in the form of a printed periodical in monochrome with 89 pages and the softcopy has been uploaded to the IPSL website after holding the Technical Sessions. The members of the Technical Sessions Editorial Committee are;

Chairman: Professor K P S C Jayaratne  
 Professor D D N B Daya  
 Professor L B D R P Wijesundera  
 Professor P A A Perera  
 Dr. (Ms.) H O Wijewardane  
 Dr. P K D D P Pitigala (Convener, Ex-officio)  
 Professor V P S Perera (Ex-officio)

### Sri Lankan Journal of Physics (SLJP)

The Volume 22- Issue I of the journal was published on-line on the IPSL web site [www.ipsl.lk](http://www.ipsl.lk), and also at the Sri Lankan Journal Online (SLJOL) system. Hardcopies of Volumes 22 will be printed and distributed to all Libraries in the state Universities in the future. The Editorial Board of the SLJP is as follows.

Editor in Chief: Professor P.A.A. Perera (University of Kelaniya)  
 Associate Editors: Professor W.G.D. Darmaratne (University of Ruhuna)  
 Professor J.K.D.S. Jayanetti (University of Colombo)  
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 Professor A.G.U. Perera (Georgia State University)  
 Professor D.U.J. Sonnadara (University of Colombo)  
 Professor W.L. Sumathipala (The Open University of Sri Lanka)  
 Professor R.C. Woods (Louisiana State University)  
 Ex-Officio: Professor V.P.S. Perera (Open University of Sri Lanka)  
 Copy Editor: Professor P.S. Hewageegana (University of Kelaniya)

### IPSL Newsletter

The IPSL Newsletter 2020 (Volume 14) has been prepared and published on-line in the IPSL web site [www.ipsl.lk](http://www.ipsl.lk).

## The Annual Get-Together & Dinner

The IPSL Members' Annual Get-together & Dinner was held on 03rd December 2021 at Hotel Janaki with 25 participants.