



**INTERNATIONAL CONFERENCE ON APPLIED AND PURE SCIENCES**  
**ICAPS 2023 – Kelaniya**  
**Faculty of Science, University of Kelaniya, Sri Lanka**  
**13th October 2023**



**Chair 1** Mr. J. Munasinghe

**Chair 2** Dr. L.P.N.D. Premaratna

**Moderator** Ms. J.A.D.L.K. Jayasooriya

**Shadow Moderator** Ms. P.H.L.U.Peiris

**Session** Physical Sciences

**Track** PS-MATH-T1

**Venue** A7 406

| Session ID | CMT ID | Title  | Authors  |       |       |
|------------|--------|--|--|-------|-------|
| PO-14      | 86     | Viscous Dissipation and thermal radiation of Williamson fluid flow over an exponentially stretching sheet          | N. G. A. Karunathilake <sup>1*</sup> , W. P. T. Hansameenu <sup>1</sup> and G. S. Wijesiri <sup>1</sup><br><sup>1</sup> Department of Mathematics, University of Kelaniya, Sri Lanka<br>gamage@kln.ac.lk*  | 10:30 | 10:45 |
| PO-19      | 122    | Mass and heat transfer of modified second-grade fluid flow through a porous media over a linearly stretching sheet | L. M. N. Fernando <sup>1*</sup> and N. G. A. Karunathilaka <sup>1</sup><br><sup>1</sup> Department of Mathematics, Faculty of Science, University of Kelaniya, Sri Lanka<br>minolif13@gmail.com*   | 10:45 | 11:00 |
| PO-27      | 141    | Solutions of singular Sturm-Liouville problems using exponential integrators                                       | M. G. P. A. Jayasinghe <sup>1*</sup> and B. B. U. P. Perera <sup>1</sup><br><sup>1</sup> Department of Mathematics, Faculty of Science, University of Kelaniya, Sri Lanka.<br>prabhadijayasinghe@gmail.com*  | 11:00 | 11:15 |
| PO-32      | 162    | Energies of graphs by means of splitting and shadow graph operations   | S. V. S. K. Samarasinghe <sup>1*</sup> and K. K. K. R. Perera <sup>2</sup><br><sup>1</sup> Faculty of Science, University of Kelaniya, Sri Lanka<br><sup>2</sup> Department of Mathematics, University of Kelaniya, Sri Lanka<br>savini.kusalka@gmail.com* | 11:15 | 11:30 |
| PO-47      | 209    | Numerical solutions of fuzzy differential equations using higher order methods                                     | H. H. D. Kumara <sup>1*</sup> and B. B. U. P. Perera <sup>1</sup><br><sup>1</sup> Department of Mathematics, Faculty of Science, University of Kelaniya, Sri Lanka.<br>dilanmaths905@gmail.com*  | 11:30 | 11:45 |
| PF-04      | 173    | Hopf bifurcation in a periodic toxin producing phytoplankton model.  | P. P. Dilshani <sup>1*</sup> , T. M. M. De Silva <sup>1</sup><br><sup>1</sup> Department of Mathematics, University of Kelaniya, Sri Lanka<br>dilshani_ps17029@stu.kln.ac.lk*  | 11:45 | 12:00 |



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**Chair 1** Mr. N.G.A. Karunathilaka  
**Chair 2** Dr. K.K.K.R. Perera  
**Moderator** Ms. L.M. Fernando  
**Shadow Moderator** Mr. V. Chathuranga

**Session** Physical Sciences  
**Track** PS-MATH-T2  
**Venue** A7 406  
**Zoom link** <https://us06web.zoom.us/j/83236306188?pwd=6Rm4yX8NcibZdR387bmi31LOx1gGy2.1>

| Session ID | CMT ID | Title  | Authors  |       |       |
|------------|--------|--|--|-------|-------|
| PO-04      | 26     | Controlled K-frames in quaternionic setting  | M. Khokulan <sup>1*</sup> and R. Ramakrishnan <sup>1</sup><br><sup>1</sup> Department of Mathematics and Statistics, University of Jaffna, Sri Lanka<br>mkhokulan@univ.jfn.ac.lk*  | 14:00 | 14:15 |
| PO-37      | 178    | Convective heat transfer through a pipe with mixed boundary conditions   | W. U. Imeshan <sup>1*</sup> and W. P. T. Hansameenu <sup>1</sup><br><sup>1</sup> Department of Mathematics, Faculty of Science, University of Kelaniya, Sri Lanka<br>ujithaimeshan@gmail.com*  | 14:15 | 14:30 |
| PO-41      | 189    | Qualitative and quantitative analysis of the dengue fever model with reference to the data obtained from Sri Lanka       | J. A. D. L. K. Jayasooriya <sup>1*</sup> , J. Munasinghe <sup>1</sup> and T. M. M. De Silva <sup>1</sup><br><sup>1</sup> Department of Mathematics, Faculty of Science, University of Kelaniya, Sri Lanka<br>laknakaumadee@gmail.com*  | 14:30 | 14:45 |
| PO-46      | 207    | Selection of best fitting mathematical model to analyse the anthracene degradation ability of <i>Bacillus velezensis</i> | S. A. R. R. Madushika <sup>1</sup> , J. Munasinghe <sup>1*</sup> and L. Undugoda <sup>2</sup><br><sup>1</sup> Department of Mathematics, Faculty of Science, University of Kelaniya, Sri Lanka<br><sup>2</sup> Department of Biosystem Technology, Faculty of Technology, University of Sri Jayawardhanapura, Sri Lanka<br>munasing@kln.ac.lk* | 14:45 | 15:00 |
| PO-36      | 236    | Symmetric key encryption and decryption using graph theory   | K. K. N. Fernando <sup>1*</sup> , G. S. Wijesiri <sup>1</sup><br><sup>1</sup> Faculty of Science, University of Kelaniya, Sri Lanka.<br>kaveefdog7@gmail.com*, sujeew@kln.ac.lk  | 15:00 | 15:15 |



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**Chair 1** Prof. N.V.C. Chandrasekara

**Chair 2** Dr. H.W.B. Kavinga

**Moderator** Mr. W.A.D.M. Lakshitha

**Shadow Moderator** Mr. G.P.N.M. Pathirana

**Session** Physical Sciences

**Track** PS-STAT-T1

**Venue** A7 308

| Session ID | CMT ID | Title   | Authors  |       |       |
|------------|--------|---|--|-------|-------|
| PO-48      | 214    | A complex sample design based analysis of determinants of secondary job holding of heads of households in Sri Lanka                                       | P. A. H. S. Pannala <sup>1*</sup> , K. A. D. Deshani <sup>1</sup><br><sup>1</sup> Department of Statistics, University of Colombo, Sri Lanka<br>pahspannala@gmail.com*   | 10:30 | 10:45 |
| PF-03      | 146    | Fuzzy linear regression approach for modelling dengue disease transmission in Colombo   | W. S. R. Fernando <sup>1*</sup> and A. M. C. H. Attanayake <sup>1</sup><br><sup>1</sup> Faculty of Science, University of Kelaniya, Sri Lanka<br>fernandosara1997@gmail.com*   | 10:45 | 11:00 |
| PO-23      | 135    | Estimating the optimum plot size for coconut field experiment   | K. M. T. L. Fernando <sup>1*</sup> , K. P. Waidyaratne <sup>2</sup> , and D. D. M. Jayasundara <sup>1</sup><br><sup>1</sup> Department of Statistics & Computer Science, Faculty of Science, University of Kelaniya, Sri Lanka<br><sup>2</sup> Department of Plant Physiology, Coconut Research Institute, Lunuwila, Sri Lanka<br>fdotaniya123@gmail.com*  | 11:00 | 11:15 |
| PO-30      | 155    | A quantitative characterization of sector-wise performance interdependencies in stock market using changepoint and performance-induced distant clustering | R.T. Kavishka <sup>1*</sup> , U. P. Liyanage <sup>1</sup> , A. P. Hewaarachchi <sup>1</sup> and D. M. P. V. Dissanayaka <sup>1</sup><br><sup>1</sup> University of Kelaniya, Department of Statistics and Computer Science, Sri Lanka<br>rptkavishka@gmail.com*  | 11:15 | 11:30 |
| PO-29      | 145    | Exploring the best procedure for estimating extreme quantiles: a case study   | P. A. D. A. N. Appuhamy <sup>1*</sup> and T. D. A. G. Thewarapperuma <sup>1</sup><br><sup>1</sup> Wayamba University of Sri Lanka, Kuliypitiya, Sri Lanka<br>asankanidarshani@wyb.ac.lk*   | 11:30 | 11:45 |
| PO-34      | 165    | A quantitative analysis of fishery industry in modelling of production, trade dynamics, and COVID-19 impact estimation                                    | R. P. K. Sandamini <sup>1*</sup> , K. D. R. Tharaka <sup>1</sup> , W. A. P. K. V. Wickramasinghe <sup>1</sup> , T. A. B. Mendis <sup>1</sup> , J. M. C. D. Wijesekara <sup>1</sup> , J. M. D. C. Lakruwan <sup>1</sup> , O. R. G. K. Dasanayaka <sup>1</sup> , U. P. Liyanage <sup>1</sup> and A. P. Hewaarachchi <sup>1</sup><br><sup>1</sup> Department of Statistics & Computer Science, Faculty of Science, University of Kelaniya, Kelaniya<br>kamalka.sandamini@gmail.com* | 11:45 | 12:00 |
| PO-38      | 181    | Analysis of the interrelationship between weather parameters in Colombo area  | D. G. S. P. Samarasinghe <sup>1*</sup> , A. P. Hewaarachchi <sup>1</sup> and D. M. P. V. Dissanayaka <sup>1</sup><br><sup>1</sup> Department of Statistics & Computer Science, University of Kelaniya, Sri Lanka<br>sandeepa9813@gmail.com*  | 12:00 | 12:15 |
| PO-24      | 136    | Estimating COVID-19 prevalence in Sri Lanka   | J. D. T. Erandi <sup>1*</sup> , U. P. Liyanage <sup>1</sup> and A. Gunawardana <sup>2</sup><br><sup>1</sup> Department of Statistics & Computer Science, University of Kelaniya, Sri Lanka<br><sup>2</sup> Department of Decision Sciences, University of Moratuwa, Sri Lanka<br>tenushierandi@gmail.com*  | 12:15 | 12:30 |



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**Chair 1** Dr. A.M.C.H. Attanayake

**Chair 2** Dr. A.P. Hewaarachchi

**Moderator** Ms. N. Kuloshika

**Shadow Moderator** Mr. H.H.D. Kumara

**Session** Physical Sciences

**Track** PS-STAT-T2

**Venue** A7 308

**Zoom link** <https://us06web.zoom.us/j/83236306188?pwd=6Rm4yX8NcibZdR387bmi31LOx1gGy2.1>

| Session ID | CMT ID | Title   | Authors   |       |       |
|------------|--------|---|---|-------|-------|
| PO-50      | 217    | The effect of food commodity price fluctuation on inflation in Sri Lanka  | H. A. D. D. Nadeekantha*, W. A. D. M. Lakshitha, K. P. G. S. Melan and N. V. Chandrasekara<br>Department of Statistics & Computer Science, Faculty of Science, University of Kelaniya, Sri Lanka.<br>damika.nadeekantha@gmail.com*  | 14:00 | 14:15 |
| PO-26      | 140    | Identification of factors leading to elephant deaths in human-elephant conflicts                                      | W. A. D. M. Lakshitha1*, N. V. Chandrasekara1, H. W. B. Kavinga1, N. Withanage2<br>1 Department of Statistics & Computer Science, University of Kelaniya, Sri Lanka<br>2 Department of Statistics, University of Sri Jayewardenepura, Sri Lanka<br>lakshitha3536@gmail.com *                    | 14:15 | 14:30 |
| PO-33      | 163    | A comparison of distance-based and model-based clustering methods   | H. A. D. D. Nadeekantha1*, H. W. B. Kavinga1, A. Gunawardana2 and D. M. P. V. Dissanayaka1<br>1 Department of Statistics & Computer Science, University of Kelaniya, Sri Lanka<br>2 Department of Decision Sciences, University of Moratuwa, Sri Lanka<br>damika.nadeekantha@gmail.com*         | 14:30 | 14:45 |
| PF-05      | 183    | An application of time series techniques to forecast the Open market weekly average retail price of lime in Sri Lanka | R. A. S. Wickramarathne*, M. P. A. T. Wickramanayaka, K. R. T. S. Mahanama and N. V. Chandrasekara<br>Department of Statistics & Computer Science, Faculty of Science, University of Kelaniya, Sri Lanka<br>wickrama_ps17209@stu.kln.ac.lk*   | 14:45 | 15:00 |
| PO-31      | 159    | Exploring data mining avenues in $\beta$ -Thalassemia carrier identification  | G. K. Subasinghe1*, N. V. Chandrasekara1 and A. P. Premawardhena2<br>1Department of Statistics & Computer Science, Faculty of Science, University of Kelaniya, Sri Lanka<br>2Department of Medicine, Faculty of Medicine, University of Kelaniya, Sri Lanka<br>gayathri.subasinghe97@gmail.com* | 15:00 | 15:15 |
| PO-39      | 182    | Study on tension detection and acceptance of glove liners   | G. P. N. M. Pathirana*, D. D. M. M. Jayasundara and N. V. Chandrasekara<br>Department of Statistics & Computer Science, University of Kelaniya, Sri Lanka<br>nishchithapath@gmail.com*  | 15:15 | 15:30 |
| PO-11      | 75     | A statistical approach to assess faceted blue sapphire gemstones  | K. R. T. S. Mahanama1*, N. V. Chandrasekara1 and G. D. Ranatunga2<br>1Department of Statistics & Computer Science, Faculty of Science, University of Kelaniya, Sri Lanka<br>2National Gem and Jewellery Authority, Sri Lanka<br>mahanama_ps17117@stu.kln.ac.lk*                                 | 15:30 | 15:45 |



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**Chair 1** Prof. L. B. D. R. P. Wijesundera

**Chair 2** Dr W.G.C. Kumarage

**Moderator** Mr. W.U. Imeshan

**Shadow Moderator** Ms. K.K.N. Fernando

**Session** Physical Sciences

**Track** PS-PHYS-T1

**Venue** A7 201

| Session ID | CMT ID | Title   | Authors  |       |       |
|------------|--------|---|--|-------|-------|
| PO-25      | 138    | Designing a high-performance parametric speaker system: simulation and optimization   | T. N. Gurusinghe <sup>1*</sup> , J. A. Seneviratne <sup>1</sup> , A. L. A. K. Ranaweera <sup>1</sup> , and S. R. D. Kalingamudali <sup>1</sup><br><sup>1</sup> Department of Physics and Electronics, University of Kelaniya, Sri Lanka<br>tharindu_2019@kln.ac.lk*  | 10:30 | 10:45 |
| PO-40      | 184    | Optimising energy efficiency in a PV-enabled base transceiver station   | J. A. T. D. Jayasooriya <sup>1</sup> , P. L. A. K. Piyumal <sup>2*</sup> , and A. L. A. K. Ranaweera <sup>2</sup><br>Department of Electrical and Electronics Engineering, CINEC Campus, Sri Lanka.<br><sup>2</sup> Department of Physics and Electronics, University of Kelaniya, Sri Lanka.<br>kasunp@kln.ac.lk*   | 10:45 | 11:00 |
| PO-01      | 14     | Simple cubic structured ferromagnetic thin films with two spin layers explained by fourth order perturbed Heisenberg Hamiltonian                            | M. S. M. Farhan <sup>1*</sup> and P. Samarasekara <sup>2</sup><br><sup>1</sup> Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka<br><sup>2</sup> Department of Physics, University of Peradeniya, Peradeniya, Sri Lanka<br>Salyfarhan243@email.com*   | 11:00 | 11:15 |
| PF-02      | 38     | Sound absorption properties of structures developed using waste materials   | N. D. D. D. Senarath <sup>*1</sup> , J. A. C. P. Jayalath <sup>1</sup> and D. R. A. Mendis <sup>1</sup><br><sup>1</sup> Department of Physics, University of Peradeniya, Sri Lanka<br>danuddg6@gmail.com*  | 11:15 | 11:30 |
| PO-07      | 54     | Effect of pH on the morphology of chemical bath deposited ZnO nanowires   | A. P. S. P. Jayathilaka <sup>1*</sup> , Y. K. Abeykoon <sup>2</sup> , B. S. Dassanayake <sup>1</sup> and N. L. Dasanayake <sup>1</sup><br><sup>1</sup> Department of Physics, Faculty of Science, University of Peradeniya, Sri Lanka<br><sup>2</sup> Postgraduate Institute of Science, University of Peradeniya, Sri Lanka<br>sadithjayathilaka@gmail.com* | 11:30 | 11:45 |
| PO-09      | 62     | Enhancing quasi solid-state dye-sensitized solar cell performance using mixed-polymer gel electrolytes: the influence of low and high molar-weight polymers | R. D. M. A. C. B. Rajakarunaratne <sup>1*</sup> , H. M. N. Wickramasinghe <sup>1</sup> and T. M. W. J. Bandara <sup>2</sup><br><sup>1</sup> Postgraduate Institute of Science, University of Peradeniya, Sri Lanka<br><sup>2</sup> Department of Physics, Faculty of Science, University of Peradeniya, Sri Lanka<br>asiri.rajakaru@sci.pdn.ac.lk*           | 11:45 | 12:00 |



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**Chair 1** Prof. H.H. Sumathipala

**Chair 2** Dr. F.S.B. Kafi

**Moderator** Mr. H.A.D.D. Nadeekantha

**Shadow Moderator** Ms. S.A.R.R. Madushika

**Session** Physical Sciences

**Track** PS-PHYS-T2

**Venue** A7 B01

| Session ID | CMT ID | Title  | Authors  |       |       |
|------------|--------|--|--|-------|-------|
| PO-17      | 116    | Investigation of the elemental composition of sand along the eastern coastal region of Sri Lanka                         | A. Janani <sup>1*</sup><br><sup>1</sup> Department of Physics, University of Jaffna, Sri Lanka<br>jana39756@gmail.com*   | 10:30 | 10:45 |
| PO-03      | 23     | A study on a natural rubber and coconut coir-based carbon black composite  | H. S. R. R. Fernando <sup>1</sup> and V. A. Seneviratne <sup>1*</sup><br><sup>1</sup> Department of Physics, Faculty of Science, University of Peradeniya, Sri Lanka<br>varunis@sci.pdn.ac.lk*   | 10:45 | 11:00 |
| PO-06      | 52     | Investigating the ability to purify wastewater by using Activated Porous Carbon (APC) produced from waste surgical masks | D.K. Wellalage <sup>1*</sup> , L. R. A. K. Bandara <sup>1</sup> and N. L. Dasanayake <sup>1</sup><br><sup>1</sup> Department of Physics, University of Peradeniya, Sri Lanka<br>deepthiwellalage8@gmail.com*                           | 11:00 | 11:15 |
| PO-15      | 94     | Feasibility of piezoelectric based mechanical vibration detector   | M. K. Sajjana <sup>1*</sup> , B. M. K. Pemasiri <sup>1</sup><br><sup>1</sup> Department of Physics, University of Peradeniya, Sri Lanka<br>s16462@sci.pdn.ac.lk*   | 11:15 | 11:30 |
| PO-16      | 113    | Investigation of multi-functional metamaterial unit cell operating at SHX-X Band frequencies                             | A. K. Saraph <sup>1*</sup> , A. L. A. K. Ranaweera <sup>1</sup> , K.M.D.C Jayathilaka <sup>1</sup> and J. A. Senevirathne <sup>1</sup><br><sup>1</sup> Department of Physics, University of Kelaniya, Sri Lanka<br>aksar231@kln.ac.lk* | 11:30 | 11:45 |
| PO-22      | 131    | A modified equation for Roche limit for celestial bodies with a fluid-like structure                                     | S. U. R. Thammitage*, P. A. A. Perera and P. Hewageegana<br>Department of Physics and Electronics, University of Kelaniya, Kelaniya 11600, Sri Lanka<br>sidathudantha@gmail.com*   | 11:45 | 12:00 |



INTERNATIONAL CONFERENCE ON APPLIED AND PURE SCIENCES

ICAPS 2023 – Kelaniya

Faculty of Science, University of Kelaniya, Sri Lanka

13th October 2023

Session Physical Sciences

Track PS-PHYS-T3

Venue A7 201



Chair 1 Dr. R. Munasinghe

Chair 2 Dr. P.L.A.K. Piyumal

Moderator Ms. P.P. Dilshani

Shadow Moderator Mr. W.A.K.D. Withanaarachchi

| Session ID | CMT ID | Title   | Authors   |       |       |
|------------|--------|---|---|-------|-------|
| PF-01      |        | 11 Optimization of growth parameters of electrodeposited tin oxide thin films for PV applications   | F. S. B. Kafi*, B. H. Gunaratne, K. M. D. C. Jayathilaka and R. P. Wijesundera<br>Department of Physics and Electronics, University of Kelaniya, Sri Lanka<br>kafi@kln.ac.lk*   | 14:00 | 14:15 |
| PO-12      |        | 81 Development of a cost-effective real-time commuter counting system for public transportation in Sri Lanka                                      | R. H. M. D. Premasiri*, K. G. S. D. Korlage <sup>1</sup> , J. P. K. Hasaranga <sup>1</sup> , A. K. N. A. Alawaththa <sup>1</sup> , J. A. Seneviratne <sup>1</sup> , A. L. A. K. Ranaweera <sup>1</sup><br><sup>1</sup> Department of Physics and Electronics, University of Kelaniya, Sri Lanka<br>malitha.uok@gmail.com*   | 14:15 | 14:30 |
| PO-05      |        | 27 A study on mechanical properties of a polymer composite based on areca nut fiber   | H. A. C. Madubhashani*, V. A. Senaviratne and B. M. K. Pemasiri <sup>1</sup><br><sup>1</sup> Department of Physics, University of Peradeniya, Sri Lanka<br>chathurikamadubashini95@gmail.com*   | 14:30 | 14:45 |
| PO-42      |        | 190 Development of an off-grid solar PV system with battery-supercapacitor hybrid energy storage  | P. A. S. P. Pitigala <sup>1</sup> , P. L. A. K. Piyumal*, A. L. A. K. Ranaweera <sup>1</sup> and S. R. D. Kalingamudali <sup>1</sup><br><sup>1</sup> Department of Physics and Electronics, University of Kelaniya, Sri Lanka<br>kasunp@kln.ac.lk*  | 14:45 | 15:00 |
| PO-08      |        | 55 Photocurrent improvement in grape dye sensitized solar cells by in cooperation of electrodeposited Cu particles in TiO <sub>2</sub> photoanode | M. D. P. A. Shakya <sup>1*</sup> , K. M. D. C. Jayathilaka <sup>1</sup> , W. T. M. P. K. Wanninayake <sup>1</sup> , R. Kumara <sup>2</sup> , W. P. Siripala <sup>1</sup> and R. P. Wijesundera <sup>1</sup><br><sup>1</sup> Department of Physics and Electronics, University of Kelaniya, Kelaniya, Sri Lanka<br><sup>2</sup> Japan Synchrotron Radiation Research Institute (JASRI), Kouto 1-1-1, Hyogo 679-5198, Japan<br>paramiamashakya1996@gmail.com* | 15:00 | 15:15 |
| PO-13      |        | 85 Fabrication and characterization of electrodeposited nano structured copper oxide-based supercapacitors  | B. R. L. Anjalika*, K. M. D. C. Jayathilaka, A. L. A. K. Ranaweera, L. B. D. R. P. Wijesundera and S. R. D. Kalingamudali<br>Department of Physics and Electronics, University of Kelaniya, Sri Lanka<br>lenakshianjalika10@gmail.com*  | 15:15 | 15:30 |
| PO-18      |        | 121 Taekwondo head guard and chest guard for training and scoring   | E. J. K. S. Chethana <sup>1*</sup> , T. J. Loshana <sup>1</sup> , M. A. I. D. Jayasumana <sup>1</sup> , S. P. D. Sandanayake <sup>1</sup> , R. A. N. D. Randeniachchi <sup>1</sup> , D. D. D. S. Nandasiri <sup>1</sup> , J. A. Senevirathna <sup>1</sup> and K. B. D. H. Gunawardhana <sup>1</sup><br><sup>1</sup> Department of Physics and Electronics, University of Kelaniya, Sri Lanka. Sasanichethana1213@gmail.com*                                 | 15:30 | 15:45 |



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**Chair 1** Prof. D. S. M. De Silva

**Chair 2** Dr. W.N.T.D.N. Weerakoon

**Moderator** Ms. A.A.A.W. Dissanayaka

**Shadow Moderator** Ms. P.J.R. Tharika

**Session** Physical Sciences

**Track** PS-CHEM-T1

**Venue** A7 301

| Session ID | CMT ID | Title   | Authors   |       |       |
|------------|--------|---|---|-------|-------|
| PO-35      | 231    | Atmospheric chemical composition of bulk precipitation of selected areas of Galle District.                       | H. M. L. V. Amunugama <sup>1</sup> and M. P. Deeyamulla <sup>1*</sup><br><sup>1</sup> Department of Chemistry, University of Kelaniya, Sri Lanka<br>mpd@kln.ac.lk*  | 10:30 | 10:45 |
| PO-20      | 128    | Computational investigation of the effect of natural derivatives of Curcumin as anti-Asthma drugs                 | N. G. D. S. Abeyrathne and J. N. Dahanayake*<br>Department of Chemistry, Faculty of Science, University of Kelaniya, Sri Lanka<br>jayangikadh@kln.ac.lk*  | 10:45 | 11:00 |
| PO-10      | 222    | Development of a simple sol-gel based colorimetric sensor for the detection and quantification of Gallic acid     | H. A. I. Perera <sup>1</sup> , W. K. I. L. Wanniarachchi <sup>2</sup> , and D. D. C. de S. Wanniarachchi <sup>1*</sup><br><sup>1</sup> Department of Chemistry, Faculty of Science, University of Kelaniya, Sri Lanka<br><sup>2</sup> Department of Physics, Faculty of Applied Science, University of Sri Jayewardenepura, Sri Lanka<br>dakshikacw@kln.ac.lk*  | 11:00 | 11:15 |
| PO-49      | 216    | Development of sand/graphene composite and its application for MCPA pesticide adsorption from water               | W. P. R. T. Perera <sup>1,3*</sup> , N.M.N Ruwanthi <sup>1</sup> , P. L. R. A. Perera <sup>2,3</sup> , Amila Kannangara <sup>2</sup> , W.A.P.J Premarathna <sup>2,3</sup> , J. A. Liyanage <sup>2,3</sup> , and A. R. Kumarasinghe <sup>4</sup><br><sup>1</sup> Department of Indigenous Medical Resources, Gampaha Wickramarachchi University of Indigenous Medicine, Sri Lanka<br><sup>2</sup> Department of Chemistry, University of Kelaniya, Sri Lanka<br><sup>3</sup> CKDu Information and Research Centre & Department of Chemistry, University of Kelaniya, Sri Lanka<br><sup>4</sup> Department of Physics, University of Sri Jayewardenepura, Sri Lanka<br>wprtp@gwu.ac.lk* | 11:15 | 11:30 |
| PO-44      | 201    | Natural plant products as potential Cyclooxygenase-2 (COX-2) inhibitors: An <i>in-silico</i> drug discovery study | I. G. G. S. Dissanayaka, and J. N. Dahanayake*<br>Department of Chemistry, Faculty of Science, University of Kelaniya, Sri Lanka<br>jayangikadh@kln.ac.lk*  | 11:30 | 11:45 |





**INTERNATIONAL CONFERENCE ON APPLIED AND PURE SCIENCES**  
**ICAPS 2023 – Kelaniya**  
**Faculty of Science, University of Kelaniya, Sri Lanka**  
**13th October 2023**



**Chair 1** Dr. M. P. Deeyamulla

**Chair 2** Dr. A. Jeewandara

**Moderator** Ms. C.H. Dharmasiri

**Shadow Moderator** Ms. W.K.Rasanjali

**Session** Physical Sciences

**Track** PS-CHEM-T2

**Venue** A7 301

| Session ID | CMT ID | Title  | Authors  |       |       |
|------------|--------|--|--|-------|-------|
| PO-21      | 129    | Computational assessment of novel derivatives of Epigallocatechin gallate as potential anti-Tuberculosis agents        | K. P. M. Perera and J. N. Dahanayake* Department of Chemistry, Faculty of Science, University of Kelaniya, Sri Lanka<br>jayangikadh@kln.ac.lk*   | 14:00 | 14:15 |
| PO-45      | 205    | Computational studies of derivatives of selected marine organisms on acute myeloid leukemia                            | N. A. H. W. S. Deemantha, and J. N. Dahanayake* Department of Chemistry, Faculty of Science, University of Kelaniya, Sri Lanka<br>jayangikadh@kln.ac.lk*   | 14:15 | 14:30 |
| PO-43      | 196    | The effectiveness of electrochemical oxidation in removal of sulforhodamine B textile dye from wastewater              | A. P. A. G. Aberathna <sup>1</sup> , C. K. Jayasuriya <sup>1</sup> and J. K. Premachandra <sup>2</sup> *<br><sup>1</sup> Department of Chemistry, University of Kelaniya, Sri Lanka<br><sup>2</sup> Department of Chemical and Process Engineering, University of Moratuwa, Sri Lanka<br>jagath@uom.lk*  | 14:30 | 14:45 |
| PO-28      | 142    | A novel method for spectrophotometric detection of Glyphosate using a simple terpyridine-based Zn complex              | K. S. Tharaka <sup>1</sup> , R. S. Diyabalanage <sup>2</sup> and D. D. S. de S. Wanniarachchi <sup>1</sup> *<br><sup>1</sup> Department of Chemistry, University of Kelaniya, Sri Lanka<br><sup>2</sup> Faculty of Applied Science, University of Sri Jayawardanapura, Sri Lanka<br>dakshikacw@kln.ac.lk*  | 14:45 | 15:00 |
| PO-02      | 16     | The influence of substrates on the device performance of the TCO/CBD-CdS/ ED-CdTe and TCO/CBD-CdS/CSS-CdTe solar cells | G. K. U. P. Gajanayake <sup>1</sup> , K. M. N. S. Bandara <sup>2</sup> , D. S. M. De Silva <sup>1</sup> *, and H.Y.R. Atapattu <sup>3</sup><br><sup>1</sup> Department of Chemistry, Faculty of Science, University of Kelaniya, Sri Lanka<br><sup>2</sup> Department of Physics, Faculty of Science, University of Peradeniya, Sri Lanka<br><sup>3</sup> Department of Instrumentation & Automation Technology, Faculty of Technology, University of Colombo, Sri Lanka<br>sujeewa@kln.ac.lk* | 15:00 | 15:15 |



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Session P-02 (Poster Presentations)  
Track Physical Sciences / Multidisciplinary Research  
Venue B2 201

| Session ID | CMT ID | Session ID | Title  | Authors   | Time          |
|------------|--------|------------|--|---|---------------|
| PP-01      | 66     | P-02-01    | Ionic conductivity of novel solid polymer electrolyte based on polyethylene oxide (PEO) and magnesium pyrophosphate ( $Mg_2P_2O_7$ ) | K. L. A. C. Lakshan <sup>1*</sup> , H. H. Sumathipala <sup>1</sup> and L. B. D. R. P. Wijesundara <sup>1</sup><br><sup>1</sup> Department of Physics and Electronics, University of Kelaniya, Sri Lanka<br>lakshanklac@gmail.com*   | 13.00 – 13.10 |
| PP-02      | 166    | P-02-02    | Computational investigation of novel Curcumin derivatives as anti-Tuberculosis agents  | M. W. K. A. Amarasena and J. N. Dahanayake*<br>Department of Chemistry, Faculty of Science, University of Kelaniya, Sri Lanka<br>jayangikadh@kln.ac.lk*   | 13.10 – 13.20 |
| PP-03      | 176    | P-02-03    | Comparison of different methods for generating SPWM signal for the development of a pure Sine wave inverter                          | S. B. N. H. Hemal <sup>1*</sup> , G. K. D. Dilshan <sup>1</sup> , M. A. D. D. S. Karunaratne <sup>1</sup> , K. N. Morawakaarachchi <sup>1</sup> , S. V. Senanayake <sup>1</sup> , R. H. M. D. Pramasiri <sup>1</sup> , P. L. A. K. Piyumal <sup>1</sup> and A. L. A. K. Ranaweera <sup>1</sup><br><sup>1</sup> Department of Physics and Electronics, University of Kelaniya, Sri Lanka.<br>hasitha.hemal97@gmail.com*          | 13.20 – 13.30 |
| PP-04      | 10     | P-02-04    | Spatial and temporal variations in total iron concentration in the Kalatuwawa reservoir: a comparative analysis of different depths  | Harshana K.G. E <sup>1*</sup> , Thennakoon T.M.A.L.M <sup>1</sup><br><sup>1</sup> National Water Supply & Drainage Board, Sri Lanka<br>kgeharshana@yahoo.com*   | 13.30 – 13.40 |
| PP-05      | 71     | P-02-05    | Enhancement of physical properties of red clay based superior quality cookware.  | M.H.T. Dulaj <sup>1,2*</sup> , H.M.B.I. Gunathilaka <sup>1</sup> , R.C.W. Arachchige <sup>1</sup> , D.R. Pandithavidana <sup>2</sup> and I.R.M. Kottegoda <sup>1</sup><br><sup>1</sup> Material Technology Section, Industrial Technology Institute, No.363, Baudhaloka Mw, Colombo 7, Sri Lanka.<br><sup>2</sup> Department of Chemistry, Faculty of Sciences, University of Kelaniya, Sri Lanka.<br>thashiradulaj2@gmail.com* | 13.40 – 13.50 |