

# Annual Research Symposium 2025, University of Colombo

## Postgraduate Technical Sessions

### Faculty of Science

Friday, the 7th of November 2025

#### Theme: Science for Human-Centric Innovation and Resilience

**Inauguration** (Venue: ILC Auditorium, Faculty of Science)

Time Programme	Time Programme
8.00 am - 8.30 am	Registration of Participants
8.30 am - 8.35 am	Lighting of the Traditional Oil Lamp
8.35 am - 8.40 am	National Anthem
8.40 am - 8.45 am	Welcome Address [Chair Prof. Sanjeeva Perea, Symposium Co-Chair]
8.50 am - 9.00 am	Address by the Dean, Faculty of Science
9.00 am - 9.30 am	Keynote Address Prof. Saman Senaweera, Honorary Professor, University of Melbourne, Australia.
9.30 am - 10.00 am	Presentations by young academics of the faculty Presenters: Dr. Kalpani Marasinghe and Dr. Muditha Bandara
10.00 am - 10.05 am	Vote of Thanks [Dr. Ayomi Witharana, Committee member, Center for Postgraduate Studies]
10.05 am - 10.30 am	Refreshments
10.30 am - 1.00 pm	Postgraduate Technical Sessions Track 1 (NPLT, Department of Physics) – Physics Track 2 (Seminar room, 5th Floor, Department of Statistics) – Mathematics, Statistics & Nuclear Science Track 3 (NCLT, Department of Chemistry) – Chemistry Track 4 (Seminar Room 1, Department of Plant Sciences) – Biological Science (Each track includes a Guest Lecture from 10.30 am – 11.00 am followed by Presentations by PG Students/Academic Staff members)
1.00 pm - 2.00 pm	Lunch

### Schedule of the Technical Sessions:

No.	Time	TRACK 1: PHYSICS (Venue: NPLT, Department of Physics) Chairperson: Dr. Monika Madhavi	Name of the Presenter
	10.30 am – 11.00 am	Guest Lecture: Dr. B.P.W. Fernando, Department of Mathematics, University of Sri Jayawardanapura	
01.	11.00 am – 11.15 am	Transforming ChatGPT for human-like interaction in Physics Education: a case study using content and language integrated learning with GCE A/L students <i>H.L.W.P. Guruge, M.S. Gunawardene, and R.V. Coorey</i>	H.L.W.P. Guruge
02.	11.15 am – 11.30 am	Investigating the suitability of Gestalt Principles for enhancing conceptual understanding of Newton's Laws among year 10 Physics students – A case study <i>H. Balasubramaniam, M.S. Gunawardene, and R.V. Coorey</i>	H. Balasubramaniam
03.	11.30 am – 11.45 am	Probing the hidden nature of the universe by high energy physics simulations of Big Bang nucleosynthesis and AGN <i>P.A. Liyanage, J. Adassuriya, K.P.S.C. Jayaratne, M.B. Rathnayake</i>	P.A. Liyanage
04.	11.45 am – 12.00 pm	Induced effect on the solar panel due to Narrow Bipolar Pulses <i>Ganga Lokuhettige, Sankha Nanayakkara, Mahendra Fernando and Vernon Cooray</i>	Ganga Lokuhettige
05.	12.00 pm - 12.15 pm	Simulation and optical design of a compact high-resolution spectrograph using Zemax OpticStudio <i>M Viveganandam, J Adassuriya, and K P S C Jayaratne</i>	M Viveganandam
06.	12.15 pm – 12.30 pm	Evaluating satellite-derived salinity indices for surface water salinity estimation using <i>in-situ</i> electrical conductivity measurements in Kalu Ganga <i>E.G.K.R. Egodage, J.T. Kalani, H.H.E. Jayaweera, M.S. Gunewardena, J.K.D.S. Jayanetti, and W.A.M. Madhavi</i>	E.G.K.R. Egodage
07.	12.30 pm – 12.45 pm	Classification of pre-harvest avocado maturity using machine learning assisted polarization-based multispectral imaging <i>Madusha Perera, K. A. D. M. Chandupa, Shehara De Silva, Monika Madhavi, Siyath Gunewardene, Hiran Jayaweera</i>	Madusha Perera

No.	Time	<b>TRACK 2: Mathematics, Statistics &amp; Nuclear Science (Venue: Statistics Conference Hall, 5th Floor, Department of Statistics)</b>  <b>Chairperson: Dr. Sameera Viswakula</b>	Name of the Presenter
	10.30 am – 11.00 am	Guest Lecture: Professor Chee Peng Lim, Department of Computing Technologies Swinburne University of Technology Melbourne, Australia	
01.	11.00 am – 11.15 am	A multi-criteria framework for locating sustainable wind energy plants in Sri Lanka <i>A.W. Sandali Hansika, K. K. W. Hasitha Erandi, S. S. N. Perera</i>	Dr. K. K. W. Hasitha Erandi
02.	11.15 am – 11.30 am	Topological index-based filtering to identify suitable nanocarriers for Amoxicillin: a graph theoretical approach <i>W.T.L.D. Thathsarani, K.K.W.H. Erandi, U.P. Liyanage, S.S.N. Perera, P. Paranamana</i>	Dr. K. K. W. Hasitha Erandi
03.	11.30 am – 11.45 am	A Comparative Analysis to Forecast Carbon Dioxide Emission in Sri Lanka <i>K.D. Madhubhashani and R.A.B. Abeygunawardana</i>	K.D. Madhubhashani
04.	11.45 am – 12.00 pm	A hybrid modelling approach for forecasting fluvial flood occurrences in the Ratnapura area, Sri Lanka <i>K.S. Saubhagya, C.D. Tilakaratne, G.P. Lakraj, and M.A. Mammadov</i>	K.S. Saubhagya
05.	12.00 pm - 12.15 pm	Spatial-temporal analysis of the Colombo flight information region <i>P.K.A.D.N.H. Thilakarathne, C.D. Tilakaratne</i>	P.K.A.D.N.H. Thilakarathne
06.	12.15 pm – 12.30 pm	Factors associated with chronic kidney disease of unknown aetiology in Sri Lanka <i>M.P.P.U. Chulasiri, R.V.R.V. Jayatillake</i>	M.P.P.U. Chulasiri
07.	12.30 pm – 12.45 pm	A preliminary measurement and analysis of the altitudinal variation of beryllium-7 and other atmospheric isotopes in Colombo, Sri Lanka <i>D.M.S.R. Alwis, M.R. Lamabadusuriya, J.S. Wickremasinghe and C. Sumithrarachchi</i>	D.M.S.R. Alwis
08.	12.45 pm – 1.00 pm	A feasibility study of the production of $^{131}\text{I}$ to be used in radioimmunoassay in Sri Lanka <i>M. Perera, R. Thenabadu, M. Lamabadusuriya and C. Sumithrarachchi</i>	M. Perera, R. Thenabadu

No.	Time	TRACK 3: Chemistry (Venue: NCLT, Department of Chemistry)  Chairperson: Dr. P. V. D. Gayathri N. Silva	Name of the Presenter
	10.30 am – 11.00 am	Guest Lecture: Dr. Savini Bandaranayake, Sandia National Laboratories, USA	
01.	11.00 am – 11.15 am	Suppression of lipid accumulation by water-extracts of red mold rice through down-regulation of PPAR $\gamma$ and C/EBP $\alpha$ transcription factors <i>I. P. Wanninaika, M. N. Kaumal, and C. Hettiarachchi</i>	I. P. Wanninaika
02.	11.15 am – 11.30 am	Exploring the potential of tea polyphenols to reduce citrinin production during black tea fermentation with <i>Monascus purpureus</i> <i>P. Subasinghe, M. N. Kaumal, U. P. S. Hasara, G. Abewickrama, and C. Hettiarachchi</i>	P. Subasinghe
03.	11.30 am – 11.45 am	Improving the properties of asphalt binder 60/70 by incorporating naphthalene-containing mineral oil derived from petroleum by-products <i>W. S. U. S. Wijenayaka and S. M. Vithanarachchi</i>	W. S. U. S. Wijenayaka
04.	11.45 am – 12.00 pm	Synthesis of ZnO nanoparticles using plant extracts containing saponins and investigation of their antibacterial activity <i>A.N. Wagarachchi and S. M. Vithanarachchi</i>	A.N. Wagarachchi
05.	12.00 pm - 12.15 pm	Immunofluorescence based characterization of Dengue Non-Structural Protein 1 (NS1) intracellular localization in hepatic and non-hepatic cells <i>K. Sirisena and K. J. Wijesinghe</i>	K. Sirisena
06.	12.15 pm – 12.30 pm	Evaluation of heavy metal removal potential of <i>Terminalia catappa</i> leaves using biosorption <i>K. A. Y. Umayanganee, G. N. Silva, and D.P.N. De Silva</i>	K. A. Y. Umayanganee
07.	12.30 pm – 12.45 pm	Breaking the cytokine storm: An <i>in-Silico</i> study of bamboo shoot sterols as natural TNF- $\alpha$ brakes in severe Dengue <i>K. A. L. H. Gunathilaka, W. M. C. Sameera, G. N. Silva, and N. I. Abeyasinghe</i>	K. A. L. H. Gunathilaka
08.	12.45 pm – 1.00 pm	A need analysis of Sri Lanka's secondary education practices: Identifying required reforms for authentic teaching and learning to address skills mismatch <i>B. M. Hewa Siliyange, L. S. I. Liyanage, T. P. Rupasinghe, N. de Silva, and A. Tillekaratne</i>	B. M. Hewa Siliyange

No.	Time	<b>TRACK 4: Biological Science (Venue: Seminar Room 1, Dept of Plant Sciences)</b>  <b>Chairperson: Prof Deepthi Wickramasinghe and Prof Hashendra Kathriarachchi</b>	Name of the Presenter
	10.30 am – 11.00 am	Guest Lecture: Prof Mahua Mukerjee, IIT, India	
01.	11.00 am – 11.15 am	Evaluation of the performance of network-based protein function prediction algorithms on protein-protein interaction networks in plants <i>M.A.S.U. Piyatissa, T.L.S. Tirimanne, S.P.C. Fernando</i>	M.A.S.U. Piyatissa
02.	11.15 am – 11.30 am	Adaptive responses of stomatal characteristics of Mangroves to diverse salinity levels <i>R. Krishanthiny, H.I.U. Caldera, T. Mathiventhan, K.G.S.U. Ariyawansa</i>	R. Krishanthiny
03.	11.30 am – 11.45 am	Microbiological quality of Spices from Small & Medium-Scale Enterprises (SMEs) in Sri Lanka <i>G. Thamira, C. M. Nanayakkara, U. Rajawardana, D. Jayawardana</i>	G. Thamira
04.	11.45 am – 12.00 pm	Plant Growth-Promoting Potential of Endophytic Fungi (PGPEF) isolated from <i>Avicennia marina</i> in enhancing growth parameters of Chili plants <i>K. Thushanthan, T. Mathiventhan, H.I.U. Caldera, N. N. Wijayawardene, K. G. S. U. Ariyawansa</i>	K. Thushanthan
05.	12.00 pm - 12.15 pm	Understanding the trace element landscape of Sri Lankan Rice: Distribution and correlational patterns of toxic heavy metals and essential elements <i>J.W. Gunawardana, S.A. Gunawardena, C. Witharana, N.D.A. Wageesha and I.C. Perera</i>	J.W. Gunawardana
06.	12.15 pm – 12.30 pm	Dynamics of Blue Carbon in Mangroves in the Rekawa Lagoon, Sri Lanka: Integrating Remote Sensing and the InVEST Model for Coastal Ecosystem Management <i>W. K. Suwandhahannadi, D. Wickramasinghe, D. D. G. L. Dahanayaka, L. Le De</i>	W. K. Suwandhahannadi
07.	12.30 pm – 12.45 pm	Understanding elephant crop raiding behavior: Interrelations with land use patterns, crop characteristics, and social structure of male elephants <i>C. Fernando, D. Weerakoon, S. Pilapitiya, M. R. Wijesinghe and P. Fernando</i>	C. Fernando
08.	12.45 pm – 1.00 pm	Valuing Nature's Treasure: An integrated conservation valuation of the Muthurajawela Wetland, Sri Lanka <i>H. Dahanayake, D. D. G. L. Dahanayaka, P. Hudson, D. Wickramasinghe</i>	H. Dahanayake