Foreword

Welcome to the first issue of 2025 for the Pertanika Journal of Science and Technology (PJST)!

PJST is an open-access journal for studies in Science and Technology published by Universiti Putra Malaysia Press. It is independently owned and managed by the university for the benefit of the world-wide science community.

This issue contains 25 articles: six review articles; two short communications; and the rest are regular articles. The authors of these articles come from different countries namely Australia, China, India, Indonesia, Iraq, Malaysia and Nigeria.

One of the articles in this issue explored the acoustic emission (AE) partial discharge (PD) localization in oil based on an artificial bee colony (ABC). Data from a previous AE PD experimental study, which includes the coordinates of three AE sensors and the time difference of arrival (TDOA), were used to construct the nonlinear localization equations. It is known that localization algorithms are among the factors that can affect PD localization accuracy, and the ongoing research in this area underscores the need for further advancements in this topic. Therefore, the ABC proposed to estimate the PD location through a colony of 120 bees, evenly divided into 60 employed and 60 onlooker bees. After 500 iterations, the optimal solution was the estimated PD location produced by ABC. Comparisons with the genetic algorithm (GA), particle swarm optimization (PSO) and bat algorithm (BA) revealed that the distance error, maximum deviation and computation time for AE PD localization based on ABC are the lowest. Details of this study are available on page 241.

The next article reviewed the precision of mangosteen maturity using conventional machine learning methods, namely Random Forest, Decision Tree, Support Vector Machine and K-Nearest Neighbor. Image samples of 253 mangosteens across six maturity stages were used, with 20 regions of interest each. 112 Gray-level Co-Occurrence Matrix and color features were extracted to train models using texture, color, and combined features. The evaluation metrics used for assessing the validity of predictions included precision, recall, F1-score, accuracy, and Cohen's Kappa. The Random Forest classifier achieved high validation scores, with an accuracy of 0.76 and Cohen's Kappa of 0.70 for combined features, 0.75 and 0.69 for colored features, and 0.46 and 0.33 for texture features. Details of this study are available on page 283.

The article by Zaahidah A Mohiju et al. from Malaysia studied the effects of electron, gamma and neutron irradiation on the superconducting properties of $(Bi, Pb)_2Sr_2Ca_2Cu_3O_x$

bulk samples. Their study revealed that electrons, gamma, and neutron irradiations reduced the critical temperature (T_c) and peak temperature (T_p) of Bi-2223 superconductors. Among these, neutron irradiation caused the most significant T_p decrease by 22.9%, highlighting its effectiveness in introducing microstructural defects. These defects serve as pinning centers, disrupting superconducting capabilities more than other irradiation types. Consequently, neutron irradiation is identified as the most impactful method for modifying Bi-2223's superconducting properties. The detailed information of this study is available on page 423.

We anticipate that you will find the evidence presented in this issue to be intriguing, thought-provoking and useful in reaching new milestones in your own research. Please recommend the journal to your colleagues and students to make this endeavour meaningful.

All the papers published in this edition underwent Pertanika's stringent peer-review process involving a minimum of two reviewers comprising internal as well as external referees. This was to ensure that the quality of the papers justified the high ranking of the journal, which is renowned as a heavily-cited journal not only by authors and researchers in Malaysia but by those in other countries around the world as well.

We would also like to express our gratitude to all the contributors, namely the authors, reviewers and Editorial Board Members of PJST, who have made this issue possible.

PJST is currently accepting manuscripts for upcoming issues based on original qualitative or quantitative research that opens new areas of inquiry and investigation.

Editor-in-Chief
Luqman Chuah Abdullah