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Editorial:

I am pleased to introduce the 64th Issue of the Mapana - Journal of Sciences on behalf of our esteemed editorial team. Our team has been dedicated to publishing ground-breaking research and review articles in the field of science, and we are proud to continue this tradition with this latest issue. Throughout the years, Mapanahas consistently sought to provide a platform for disseminating original and innovative contributions to the field of science. This issue features ten articles that delve into the fascinating fields of Mathematics, Astrophysics, Computer Sciences and Life Sciences. Our contributors have provided insightful research and analysis on diverse topics within these disciplines, offering valuable perspectives and advancing our understanding of these complex and ever-evolving fields.

In the domain of mathematics, Singh et al., studied the fuzzy -types of contraction mappings in the settings of fuzzy metric space. Their research builds upon and extends a fixed-point theorem originally proposed by Bijender in 2021. The authors expressed their hope that their study's findings would significantly contribute to the field and aid researchers in promoting and improving their theoretical work in partial metric spaces. They also suggested that further generalizations could be made by utilizing -contraction in the context of partial metric spaces, metric spaces, and metric-like spaces.

The article presented by Desai et al.,focuses on studying the S-curvature of the Randers-Matsumoto metric on a homogeneous Finsler space. They deduced the condition for an isometry of a Finsler homogeneous space with the Randers-Matsumoto metric to be an isometry of a Riemannian homogeneous space. They proved that the group of isometries of Finsler space are closed subgroups of that of Riemannian space. The authors also examined the existence of an invariant vector field and derived the formula for curvature on the reductive homogeneous space. They discussed the condition for isotropiccurvature and obtained the curvature of the Randers-Matsumoto metric for the homogeneous space using the curvature formula.

K. Lalithambigai and P. Gnanachandra introduced a new sub basis for various topologies on the vertex set of a simple graph without isolated vertices. By combining graph theory and topology, the article explores the properties of these topologies, investigating closure, interior, exterior, and boundary of vertex-induced subgraphs of a graph for graph adjacency topology. The authors' research is expected to facilitate further studies on topological structures and their properties. They suggest their findings can also be applied to graph non-adjacency topology, graph incidence topology, and graph non-incidence topology. The authors recommend exploring the incidence relation between vertices and edges of a graph when generating topologies on the edge set, which could lead to fruitful research opportunities.

In this issue, we have included an article in Astrophysics by Anjali et al., The article provides an overview of mid-infrared (MIR) bubbles, their morphology, and their connection to massive stars and young stellar objects (YSOs). The authors discuss the formation process of these bubbles and their expansion into the interstellar medium. MIR bubbles primarily form around OB-type stars or star clusters and contain ionized gas and hot dust driven by thermal pressure, HII regions, stellar winds, and radiation pressure. The authors present a case study of the CN71 bubble, showing the signature of triggered star formation. The authors suggest that observations with the James Webb Space Telescope could provide vital information on the deeply embedded young star population and revolutionize the study of IR bubbles.

In the field of Computer Science, a research article on Data Mining was presented by Sumanth S and Siddarama S. The article analyzes the impact of feature selection methods on sentiment analysis in information systems. The authors conducted a comparative study on the accuracy of various feature selection and machine learning methods in sentiment categorization of online movie reviews. The study concludes that pre-processing and feature extraction techniques are critical in enabling computers to interpret human language, and future research can assess the model's suitability for cross-domain sentiment analysis. The authors emphasize the importance of Natural Language Processing, a subset of Artificial Intelligence, in enabling machines to comprehend and interpret human language.

Biswaset al., conducted a study on stock market prediction through sentiment analysis. The authors proposed a model for predicting stock market trends that utilize sentiment analytics based on financial news and past stock market patterns, providing more accurate results by analyzing information from multiple news sources and stock price history. The model uses a two-step process, employing the Naive Bayes algorithm to evaluate text polarity and forecast future stock values based on sentiment analysis and historical stock data. The authors also introduced a novel idea, the KNN-LR Hybrid algorithm, to improve the accuracy and effectiveness of other machine learning algorithms used in the evaluation process.

Sudesh and Anjana conducted an analysis on various types of DDoS attacks, considering different features. The paper also explored several analysis techniques, such as activity profiling and scatter analysis. The authors then delved into two DDoS attack detection methods based on Signature and Anomaly. The final section discussed mitigation techniques, including network, hardware, and software-based solutions, each with advantages and disadvantages. After carefully considering all the details presented, the paper concluded that an end-to-end DDoS attack detection, analysis, and mitigation solution is necessary to maintain vigilance throughout the flow of information from source to destination servers.

In the article by Senthamilselvan et al., the researchers have synthesized Bidentate ligand employing, 4-bromobenzaldehyde and 2-amino-6-methylbenzothiazole with the help of knoevenagel reaction. To characterise the ligand, the researchers employed a number of analytical methods, including UV-Visible spectroscopy, FTIR, NMR, Mass spectroscopy, and EPR. Florescence ligandbinding was evident in the detailed analysis of the produced ligand, and an experiment using gel electrophoresis demonstrated the significance of the interaction with CT-DNA. In addition to exhibiting potential antibacterial and antifungal effects, this geometrically proven octahedral molecule also demonstrated comparable efficacy as that of Schiff base.

Postbiotics and their associated metabolites have gained significance in modern era. There have been several recent advancements in their production and enhancement. Reena et al.,

statistically optimised the fermentation media for the production of exopolysaccharide [EPS] from primate faeces isolated, Lactobacillus plantarum LG138. Response surface methodology was employed for their improved yield by optimising the media components like sucrose (5%), ammonium sulfate (1.2%), temperature (32.5ºC), incubation time (22 h) and pH (6.5). It was observed that the yield was improved from 12 mg/L to 32.88 mg/mL. The produced EPS showed significant anti-oxidant activity in addition tofree radical scavenging ability and reducing power.

Reddy et al., investigated the significance of Sulfamethoxazole (SMX) and Trimethoprim (TMP) as antibiotic agents using theoretical and experimental studies. Authors have tried to understand the stability and chemical reactivity of the examined compounds. Global reactivity descriptors were evaluated using HOMO-LUMO energies and their respective electrophilic sites were investigated. According to the FMO study, TMP is more chemically stable than SMX. NBO analysis also demonstrated the intramolecular interactions in the molecules. The significance of quantum chemical calculations is indicated by the best deal between experimentally measured vibrational frequencies of SMX and TMP, and theoretically determined frequencies.

As another issue of Mapana rolls out, we would like to express our gratitude to all the authors, reviewers, and editorial board members who have made this possible. The diverse range of topics covered in this issue highlights the interdisciplinary nature of modern scientific research, and the journal is proud to provide a platform for such significant work. The continuing expansion of human knowledge through these journeys of discovery raise the excitement in researchand sustain the interest in publishing.

I close my editorial note with the wish that Mapana may benefit its readers in their research and help serve all researchers looking to publish quality work in the vast field of sciences.

Manoj Balachandran

Editor