

From the Editors' Desk

Editorial

Onto the Sixty fourth Year

Welcome you to the 2024 half year edition of the quarterly journal "Proceedings of the Mongolian Academy of Sciences"(PMAS). PMAS joined Mongolia Journals Online (www.mongoliajol.info) starting in 2011, and indexed in the various specialized search systems. The prestige of the journal has improved and the number of downloaded articles has been increasing from year to year. As of September 2024, there were 29,879 downloads and published articles are accessible to scholars and scientists around the world.

We would like to express our gratitude to the eminent scholars and researchers who have contributed scientific articles with innovative research ideas and new remarkable outcomes for the benefit of our readers. The current edition of our journal includes the following five outstanding research articles and the summaries of which are listed below:

Parkhomov V. A. *et al* The influence of diamagnetic structure of eruptive prominences (DSEP) or fibers on magnetosphere triggers the activation of magnetospheric processes, the duration of which is determined by the transverse dimension of the DSEP (fibers), i.e., the time of the fiber's influence on the magnetosphere. Perturbations begin on the dayside of the magnetosphere with a burst of emissions in the noon sector and propagate to the morning and evening sides. There is a global excitation of irregular geomagnetic pulsations of the Pi2-Pi3 type with a period of approximately 170-250 seconds, starting at the mid-day observatory. All this indicates the development of high-latitude magnetospheric-ionospheric disturbance, distinct from the classical substorm type.

Otgondorj. Kh. *et al* propose a sixth and seventh order derivative-free method for solving systems of nonlinear equations. The necessary and sufficient condition for pp-th order of convergence are given in terms of parameter matrices in iterations. Some good choices of those parameter matrices are offered. The performance is tested through numerical experimentation, which also confirms the theoretical results.

Khishigbuyan. N. *et al* this paper is devoted to the production of $[\pi^-]$ and K^0 mesons from $\pi^+p \rightarrow \pi^+X$ and $\pi^+p \rightarrow \pi^+X$ and $\pi^+C \rightarrow \pi^+K^0X$ interactions at 40 GeV/c as a function of the square of four momentum transfer. Dependences of the strong coupling constants, $\alpha_s(q^2)$ are well described by the values of the cut parameters given in this paper (Formula (1)). Having such a formula allows researchers to easily use the coupling constant. The cut parameter has not previously been calculated using particle mass like Formula 1, and this opens up the possibility to pursue this type of research in high-energy physics.

Baatarchuluun. Ts. *et al* Atmospheric aerosols significantly impact the earth-atmosphere system's radiative energy balance by scattering and absorbing solar radiation. Understanding long-term spatial-temporal variations of aerosol optical properties is important for further exploring the impact of aerosols on climate change and atmospheric pollution. This study aimed to characterize atmospheric aerosol optical properties in Ulaanbaatar, analyze their temporal variability, and explain the causes of air pollution. The research outcomes are imperative for improving our understanding of local air



pollution and could be implemented in the air pollution mitigation public policy.

Enkhmaa. D. et al Mongolia's National Food Security System is fragile, producing significant issues in policy implementation. General failures lead to policy shifts, coordination problems, and a lack of skilled human resources, negatively impacting food security activities. This research evaluates the past decade's food security policies, their implementation, and the challenges encountered and highlight the need for legal and policy reforms to strengthen the food security system in Mongolia.

PMAS is in its 64th year and we began 2024 with a number of changes in our editorial policy and revision process. This year we revised our Editorial Board list and it is our pleasure to inform you that we have met with the new members of the Editorial Board with who we look forward to a productive collaboration. The new Editorial Board will work for the next two years from 2024 to 2026. We are grateful to many members who have given their precious time to go through and thoroughly review the results of the submitted papers. We appreciate the fact that these members spend a good deal of time to assess and confirm that the submitted articles comply with the high benchmarks that we have set for articles for submission. Taking this opportunity, we would like to once again express our sincere gratitude to the members of our Editorial Board with whom we have worked productively in the past.

The new Editorial Board includes representatives of different disciplines of science and experienced editors. We are confident that their involvement in the work of the Editorial Board will contribute to improving the quality of and substantiating the articles being published in our journal.

We would also like to express our deep appreciation to the reviewers with whom we have worked hand-in-hand to improve the quality of the articles submitted to our journal, the reviewers

tireless effort can be seen in the quality of published articles.

We are happy to note that our Editorial Board has been replenished with eminent doctors and professors from ARCADIS Company, USA; School of Medicine, Zhejiang University, People's Republic of China; Skobeltsyn Institute of Nuclear Physics (SINP, MSU) M.V. Lomonosov Moscow State University; Joint Institute for Nuclear Research (JINR) Dubna, Moscow Region, Russia; Albert-Ludwigs, University of Freiburg, German; Inchon National University, South Korea; Academia Sinica, Taiwan; UNESCO Chairholder on Environmental Sciences in Eastern Central Asia; National University of Mongolia, Ulaanbaatar, Mongolia; Mongolian National University of Medical Sciences, Grand Med Hospital, Ulaanbaatar, Mongolia; Mongolian University of Science and Technology, Ulaanbaatar, Mongolia; School of Veterinary Medicine, Mongolian University of Life Sciences, Ulaanbaatar, Mongolia; Institutes under MAS: (Institute of Physics and Technology, Mongolian Academy of Sciences; Institute of History and Ethnology, Mongolian Academy of Sciences; Institute of Geography and Geocology, Mongolian Academy of Sciences; Institute of Biology, Mongolian Academy of Sciences) and Institute of Education, Ulaanbaatar, Mongolia.

We are invariably thankful to the members of the Editorial Board, reviewers and all the writers who have contributed and are still contributing to our journal.

Welcome to the sixty fourth year of journey of the PMAS journal.

With best regards,

Associate Editor,
Enkhmagalan Damiran
Editor-in-Chief,
Avid Budeebazar