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Preface

The 4th International Conference on Computing Innovation and Applied Physics (CONF-CIAP 2025) is an annual conference focusing on research areas including computing innovation, mathematics and applied mathematics, theoretical physics, applied physics. It aims to establish a broad and interdisciplinary platform for experts, researchers, and students worldwide to present, exchange, and discuss the latest advance and development in computing innovation, mathematics and applied mathematics, theoretical physics, applied physics.

This volume contains the papers of the 4th International Conference on Computing Innovation and Applied Physics (CONF-CIAP 2025). Each of these papers has gained a comprehensive review by the editorial team and professional reviewers. Each paper has been examined and evaluated for its theme, structure, method, content, language, and format.

Cooperating with prestigious universities, CONF-CIAP 2025 organized four workshops in Eskişehir, Chicago, Glasgow and Beijing. Dr. Ömer Burak İstanbullu chaired the workshop "Implant Safety Assessment in Magnetic Resonance Imaging Environment", which was held at Eskişehir Osmangazi University. Dr. Marwan Omar chaired the workshop "Harnessing the Power of Large Language Models to Detect Software Vulnerabilities", which was held at Illinois Institute of Technology. Prof. Anil Fernando chaired the workshop "Enhancing Quantum Communication Performance for Image Transmission", which was held at University of Strathclyde. Dr. Xinqing Xiao chaired the workshop "Smart Internet of Things Technology and Application", which was held at China Agricultural University.

Besides these workshops, CONF-CIAP 2025 also held an online session. Eminent professors from top universities worldwide were invited to deliver keynote speeches in this online session, including Dr Marwan Omar from Illinois Institute of Technology, Dr. Ella Haig from University of Portsmouth and Dr. Anil Fernando from University of Strathclyde, etc. They have given keynote speeches on related topics of computing innovation, mathematics and applied mathematics, theoretical physics, applied physics.

On behalf of the committee, we would like to give sincere gratitude to all authors and speakers who have made their contributions to CONF-CIAP 2025, editors and reviewers who have guaranteed the quality of papers with their expertise, and the committee members who have devoted themselves to the success of CONF-CIAP 2025.

Dr. Ömer Burak İSTANBULLU

General Chairs of Conference Committee

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