

# **PROGRAM & ABSTRACTS**

## **INTERNATIONAL CONFERENCE ON ADVANCED MATERIALS AND SUSTAINABLE DEVELOPMENT 2026**



12<sup>th</sup>-15<sup>th</sup> July 2026  
Ton Duc Thang University, Ho Chi Minh City, Vietnam

## Session 3: Green Energy and Resources

| <b>DAY 2: Monday, 13<sup>th</sup> July 2026</b> |                                                                                                                                                                                                                                                             |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13:30 - 15:00                                   | <b>Session 3A - Room: B010</b><br><b>Session chair: Prof. Bui Xuan Nam</b>                                                                                                                                                                                  |
| 13:30 - 13:45                                   | ID 7: <i>Takashi Sasaoka, Akihiro Hamanaka, and Hideki Shimada</i> ; Study on Environmental-friendly Mining System for Deep-sea Rare-earth Rich Mud                                                                                                         |
| 13:45 - 14:00                                   | ID 3: <i>Xuan-Nam Bui, Hoang Nguyen, Dinh-Trong Vu, Thi-Thanh-Loan Nguyen, Thi-Thanh-Hoai Nguyen, and Van-Duc Nguyen</i> ; From Mine Closure to Urban Resource Systems: A Circular Economy-based Decision Framework for Deep Open-pit Quarry Transformation |
| 14:00 - 14:15                                   | ID 9: <i>Wai Yie Leong</i> ; AI-driven Monitoring and Optimization of Sustainable Post-mining Land Rehabilitation                                                                                                                                           |
| 14:15 - 14:30                                   | ID 16: <i>Phuong Nam Nguyen, Cong-Trang Nguyen, and Nguyen Nghia Tin</i> ; Load Frequency Regulation of Complex Large-scale Three-area Interconnected Power Systems under High Renewable Energy Penetration                                                 |
| 14:30 - 14:45                                   | ID 36: <i>Vu Dinh Trong, Xuan-Nam Bui, Tran Dinh Bao</i> ; Limestone Deposit Modeling Using a Stratigraphic-aware Random Forest Model                                                                                                                       |
| 14:45 - 15:00                                   | ID 38: <i>Cong-Trang Nguyen, Anh Khoa Nguyen, Hoang An Nguyen and Thanh Hung Vu</i> ; Control System Design and Energy Efficiency Evaluation of a BLDC Motor for Electric Vehicles under Complex Operating Conditions                                       |
| 15:00 - 15:30                                   | Coffee Break                                                                                                                                                                                                                                                |
| 15:30 - 17:00                                   | <b>Session 3B - Room: B010</b><br><b>Session chair: Prof. Takashi Sasaoka</b>                                                                                                                                                                               |
| 15:30 - 15:45                                   | ID 182: <i>Ahn Ji Whan, Mohd Danish Khan, and Quang Tuan Lai</i> ; Advancing Mineral Security and Resource Recycling Through Carbon Mineralization and ESG Partnerships for Ho Chi Minh City's Green and Circular Economy                                   |
| 15:45 - 16:00                                   | ID 60: <i>Vin Nguyen-Thai, Johans Jacobo-Jara, Trung Nguyen-Thoi, Mehdi Zadeh, and Dong Trong Nguyen</i> ; An LLM-based Decision-support Platform for Maritime Route Planning Under Fuel Consumption and Geopolitical Risk Constraints                      |

ID 36 - Oral, iCAMSD 2026

## **Limestone Deposit Modeling Using a Stratigraphic-aware Random Forest Model**

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**Abstract:** Constructing 3D geological models of limestone deposits is vital in sustainable resource management, as limestone is a primary raw material for cement production. In fact, there is a lack of practical and automatic methods for developing deposit models integrated with specialized stratiform geological disciplines. This study develops a Stratigraphic-Aware (SA) modeling method for lithological predictions of limestone deposits using exploration borehole data. We first constructs engineering features to automatically capture the specific stratigraphic and geometric rules of stratified deposits. They are then fed into Random Forest (RF) models for training and optimization. The developed method is validated to predict lithologies of the Ta Thiet limestone deposit, which is extracted for cement production. Compared with the standard RF, the proposed models demonstrated better performances. They also accurately respected the geological shape and distribution of the deposit and efficiently supported the mine planning and raw materials blending for cement production.

**Keywords:** limestone, stratified deposits, Random Forest, modeling.

ID 38 - Oral, iCAMSD 2026

## **Control System Design and Energy Efficiency Evaluation of a BLDC Motor for Electric Vehicles under Complex Operating Conditions**

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**Abstract:** This research evaluates the efficiency of PID controller for the brushless DC motor on electric vehicle's model. The purpose concentrates on analyzing the capability of getting to reference velocity and energy consumption throughout the battery's SOC. The EV model is constructed of main components: driving cycle, the battery model, BLDC motor, the vehicle body, and reality velocity's measurement. The effectiveness of PID controlling the motor is represented by four scenarios in 200s consisting of: urban area, highway,