Master Thesis Defend Examination

Development of a Battery Thermal Management System Based on a Dual Evaporator Ejector Expansion Refrigeration System for Energy Efficiency and Safety in Electric Vehicles

Presented by
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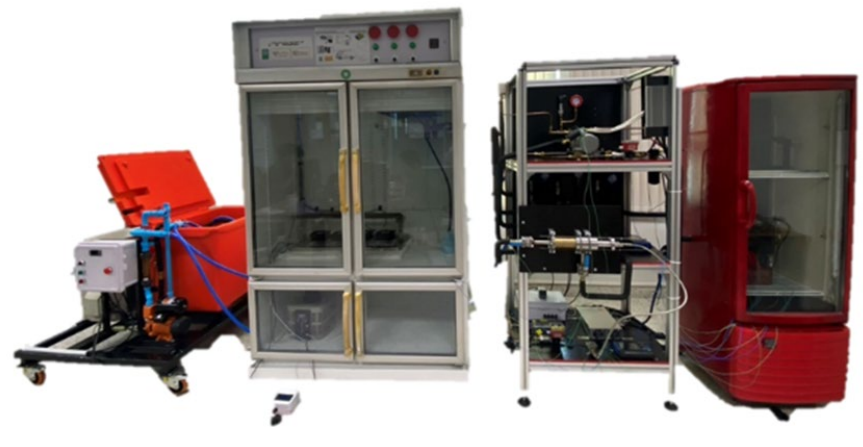
Highlight Summary

This research presents the development of a Battery Thermal Management System (BTMS) integrated with a dual-evaporator ejector expansion refrigeration system for electric vehicles. The system combines the battery cooling and passenger cabin air-conditioning functions within a single refrigeration cycle. By replacing the conventional expansion valve with a two-phase ejector, the system can recover expansion work and enhance overall energy efficiency.

The experimental study focused on the effects of key operating parameters such as the nozzle exit position, expansion valve opening, and thermal loads from both the cabin and battery. The results showed that the ejector-based system improved refrigerant distribution, maintained stable operation, and provided effective cooling performance under various load conditions.

26th November 2025 : 13.00 – 16.00
Automotive innovation lab TGGS



*The defense examination schedule is subject to change as necessary