ESTD Engineering Science & Technology Division

Ultracompact Permanent Magnet Motor and Self-Sensing Motor Drive

Objective

To develop an advanced highly efficient electric motor and controller for a mobile air-conditioning compressor for electric vehicles.

ORNL researchers examine PM motor and inverter components for an air-conditioning compressor drive on an electric vehicle.

Technology Uses

Replacement for traditional engine-driven air conditioning compressors:

- Less noise
- Smaller size
- No polluting emissions

Technology Importance

- Advancement of high speed permanent magnet motor technology saves weight and volume on an electric vehicle.
- Improvement of the air conditioning system efficiency extends the range of electric vehicles.

Project Accomplishments

An axial gap PM motor prototype and compact self-sensing inverter have been built.

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