

# ORNL EERE Transportation Program

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**December 10, 2003**

# Power Electronics and Electric Machinery Research Center

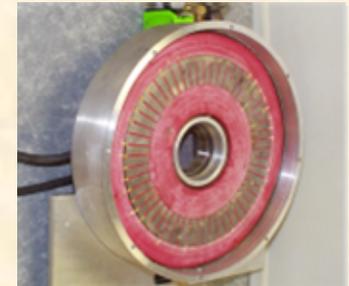
- A staff of 20 researchers (9 PhDs)
- 700 m<sup>2</sup> laboratories
- Only DOE national laboratory with an all-encompassing PEEM program
- The Center's world-wide reputation is supported by awards, patents, publications, and recognition by professional societies, academia, industry and DOE



Electric Assist Turbo Charger



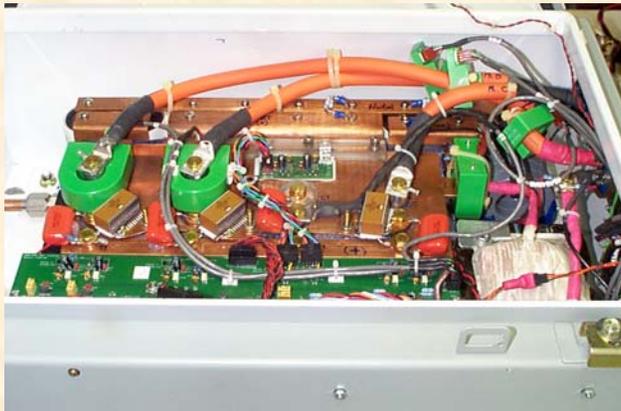
Rotor of a HSUB motor



Stator armature of a HSUB motor



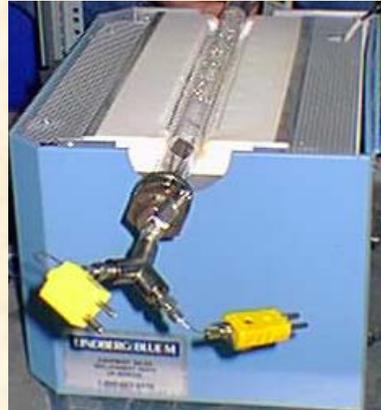
Stator DC field end bracket



100 kW, installed on vehicle 1999

- The Center is actively involved in partnerships
- Projects supported by DOE, DOD, and industry
- Plurality of funding is for hybrid-electric vehicles
- Some proprietary work

# ORNL Fuels, Engines, and Emissions R&D Spans Bench to Vehicle System



# Transportation R&D is Growing at ORNL



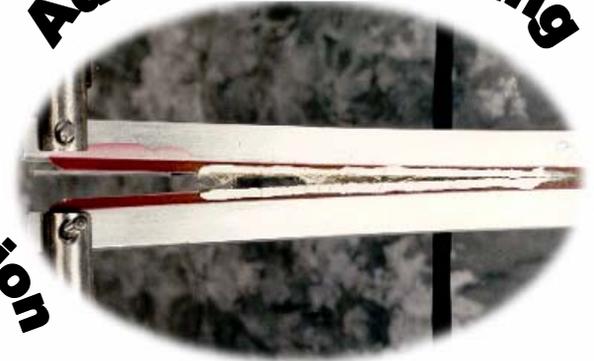
- One Third of ORNL Transportation R&D is Performed at the NTRC (Over \$35M/yr)
- User Designation Enhances Industry Interaction
- Building Designed for 160 Staff, Now 200

# ORNL Performs Research in All Aspects of Polymer Composites

## Lignin Precursor



## Adhesive Bonding



## Material Characterization



## Microwave Processing



## Composite Processing



# Light Metals Research Covers a Broad Range of Technologies and Materials

## Aluminum Casting



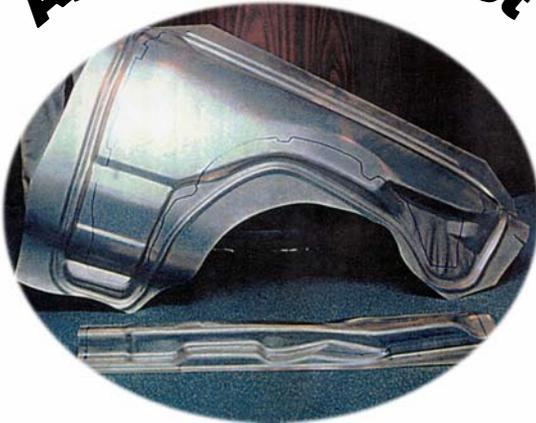
## Material Characterization



## Joining



## Aluminum Sheet



## Magnesium

