

# Powering electronic transportation

## Intelligent management systems



For electric vehicles to be successful, advances must be made to improve performance, reliability and cost.

### Objective:

- To develop advanced power electronics systems and controls that increase system efficiency, minimize size, increase reliability and reduce cost

### Approach:

- Advanced topology
- Advanced material and device - silicon carbide
- Advanced control to optimize efficiency and improve transient performance
- Research short timescale phenomenon to improve system performance

### Impact:

- Achieve higher efficiency, smaller size, higher temperature operating capability, and improved reliability in future compact systems, all-electric ships and more-electric aircraft
- Improve reliability, efficiency and reduce size and cost of power electronics content of renewable energy and distributed generation
- Improve performance and fuel economy of electric, hybrid, and plug-in vehicles with reduced system cost

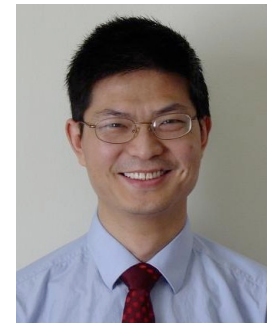
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### Facilities and infrastructure:

DTE Power Electronics Laboratory  
Institute of Advanced Vehicle Systems