

Transportation, Lightweighting, and Mobility

Below is a matrix of recent projects related to transportation, lightweighting, and mobility which NCMS has executed. Since 2008 NCMS has been involved with 35 projects with 51 original project participants totaling over \$41 million in funding. Project executive summaries are available for many; please contact melissas@ncms.org for availability.

Project Area	Historic Projects	Partner Organizations
Alternative Fuels	<ul style="list-style-type: none"> • Alternate Fuel/Energy Conversion of USMC Ground Vehicle – Assessment of Benefits and Maintainability • Development of Alternative Fuel Solutions for Gasoline and Diesel Powered Vehicles 	<ul style="list-style-type: none"> • Bi-Phase Technologies • Blossman • Petroleum Education and Research Counsel (PERC) • Schwan Food Company • Troika Solutions
Autonomous Vehicles	<ul style="list-style-type: none"> • Autonomous Transport 	<ul style="list-style-type: none"> • Missouri University of Science & Technology • Robotics Research, LLC
Batteries	<ul style="list-style-type: none"> • Advanced Lithium Battery Technology Demonstration for Forklift Trucks • Extending Lead-Acid Battery Life via Desulfating Chemicals 	<ul style="list-style-type: none"> • Analytic Strategies • Avomeen • Navitas Systems
Coatings	<ul style="list-style-type: none"> • Integrated Corrosion System • Multi-Substrate Paint Adhesion Improvement 	<ul style="list-style-type: none"> • PPG Industries
Condition Based Maintenance	<ul style="list-style-type: none"> • Reducing Maintenance Costs Through Predictive Analysis 	<ul style="list-style-type: none"> • General Electric (GE)
Lightweighting	<ul style="list-style-type: none"> • Advanced Modeling & Simulations • Automotive Component Manufacture in Titanium • Casting a Digital Manufacturing Solution • CCM-Developed Continuous Carbon Fiber Thermoplastic B-Pillar 	<ul style="list-style-type: none"> • Altair Engineering • American Titanium Works • BMW Automotive Group • Case Western Reserve University (CWRU) • Centracore • Clemson University – International Center for Automotive Research

- Cost-effective Lightweight Hybrid Composite Material and Processing Technologies
 - Damper Assembly Bracket Frequency Optimization
 - Lightweight Fiber Composite Structures with Embedded Communications
 - Lightweight Material Usage Optimization for Multi-Mode Safety, Noise, Vibration, Hardness and Durability Performance using High Performance Computing (HPC)
 - Lightweighting and Joining Adhesives
 - Low-Cost Resin System for Lightweight Polymer Matrix Composite (PMC) Components
 - Reversible Adhesive System to Improve Both Maintenance and Sustainment
 - Simplified Computational Fluid Dynamics (CFD) Analysis of Tow Vehicle & Trailer Bodies
 - Thermal Processing of Aluminum Alloys
 - Ultra-Fine Grained/Nano Aluminum Material for Connecting Rods
 - Ultra-Lightweight Sandwich Composite Constructions for Autobody Applications
 - Ultra-Lightweight Sandwich Composite Constructions for Autobody Applications – A Predictive Simulation Approach
 - Weight Optimization and Radioss Analysis
 - Dassault Systemes SIMULLA Corporation
 - Decision Incite, Inc.
 - Deformation Control Technology, Inc. (DCT)
 - Engineered Performance Materials (EPM)
 - Ford Motor Co.
 - General Electric (GE)
 - General Motors Powertrain (GM)
 - L&L Products
 - MAG-IAS, LLC
 - MAHLE
 - Michigan State University
 - Nimbus Services, Inc.
 - Oakland University
 - Ohio Super Computer
 - OKUMA America Corp
 - Plasan Carbon Composites
 - PPG Industries
 - R Systems NA, Inc.
 - SimaFore, LLC
 - TotalSim
 - University of Delaware, Center for Composite Materials
 - University of Massachusetts-Lowell (UML)
 - US Farathane
 - Wayne State University
-

<p>Logistics Information Management</p>	<ul style="list-style-type: none"> • Development of Operational Transition Procedures & Sustainment Analysis for Global Logistics Integration Systems' Supply and Maintenance Functions • MARFORRES Material Readiness Analysis and Logistics Information Management 	<ul style="list-style-type: none"> • Anglicotech • The Columbia Group
<p>Safety</p>	<ul style="list-style-type: none"> • Enhanced Environmental Performance for Safety Glass • Development of Foam Performance Tests • Preventing Seat Belt Interlock Misuse 	<ul style="list-style-type: none"> • Calspan Inc. • PPG Industries • Survivability Solutions Inc. • SynTec Seating Solutions • TK Holdings Inc.
<p>Smart Grid Vulnerabilities</p>	<ul style="list-style-type: none"> • Minimizing the Air Force Vulnerability During Smart Grid Upgrades 	<ul style="list-style-type: none"> • Booz Allen Hamilton
<p>Tire Storage</p>	<ul style="list-style-type: none"> • Degradation Prevention for Long-Term Tire Storage Sustainment 	<ul style="list-style-type: none"> • PPG Industries
<p>Vehicle Management Information Systems</p>	<ul style="list-style-type: none"> • Development of Vehicle Telematics and Condition-Based Maintenance Solutions for Fleet Sustainment • Multiple Source Fuel Management Information Systems • Telematics Migration to Management Information System 	<ul style="list-style-type: none"> • I.D. Systems • Leidos • Syntech • Trimble • Verizon