U.S. DEPARTMENT of ENERGY | Office of Critical Minerals and Energy Innovation

2025 Annual Merit Review Vehicle Technologies Office

Results Report

December 2025

5. Materials Technology

The Vehicle Technologies Office (VTO) funds research and development (R&D) of engines, batteries, power electronics, motors, materials, and transportation systems. VTO leverages the unique capabilities and world-class expertise of the national laboratory system to innovate new vehicle technologies. VTO is uniquely positioned to accelerate innovative transportation technologies due to strategic public-private research partnerships with industry (e.g., the U.S. DRIVE Partnership, the 21st Century Truck Partnership) that leverage relevant expertise. These partnerships prevent duplication of effort, focus U.S. Department of Energy (DOE) research on critical R&D barriers, and accelerate progress.

The Materials Technology subprogram plays a significant role in increasing the efficiency of all vehicles including electric vehicles (EVs) through weight reduction, more efficient engines, and enabling faster charging and sensing technologies. The materials research also contributes to the goals of reducing emissions and improving recyclability, helping reduce the overall embodied energy of vehicles.

Lightweight Materials activities support national laboratories, academia, and industry-led research in advanced high-strength steels, aluminum (Al) alloys, magnesium (Mg) alloys, carbon fiber (CF) composites, and multi-material systems. This includes projects addressing materials and manufacturing challenges spanning from atomic structure to assembly, with an emphasis on establishing and validating predictive modeling tools for materials applicable to light-duty and heavy-duty vehicles.

Lightweight Materials activities support these VTO program level goals:

- Enable a 25% weight reduction for light-duty vehicles including body, chassis, and interior as compared to a 2020 baseline by 2030, without significantly increasing costs; and
- Develop lightweight alloys with improved strength and fatigue performance for cast and additive manufacturing (AM) methods resulting in a 25% weight reduction in powertrain and suspension components by 2030.

Powertrain Materials activities similarly support research to develop higher performance materials needed by hybrids and EVs to increase efficiency and decrease manufacturing cost, helping transition to all electric light duty vehicles by 2035. Weight reduction, engine efficiency and electric powertrain system efficiency improvements for heavy-, medium-, and light-duty vehicles are being advanced through this work, addressing challenging components such as high temperature engine components, inverters, motors, and geartrains. Powertrain Materials objectives include efforts to:

- Improve electric drive motor peak efficiency by more than 2% while maintaining durability and power density, with emphasis on the needs of commercial medium- and heavy-duty electric and hybrid vehicles due to the severe materials

challenges related to power demands and service lifetimes of up to 1 million miles;

- Develop new materials to facilitate a reduction of demand for anticipated future critical materials, such as permanent magnets and copper;
- Reduce powertrain costs (less than or equal to $6/kW) and total vehicle operating costs; and
- Develop new materials to increase the efficiency and durability of internal combustion engines.

Current priority focus areas for the subprogram include: (1) lightweight alloys with high fatigue strength for suspension components, (2) high-temperature materials for engines and lighter brakes, (3) predictive models for powertrain materials, and (4) integrated computational materials engineering (ICME) tools that use high-performance computing capabilities, multi-length scale (atoms to components) material models, and boundary layer resolved thermo-kinetic models.

Project Feedback

In this merit review activity, each reviewer was asked to respond to a series of questions, involving multiple-choice responses, expository responses where text comments were requested, and numeric score responses (on a scale of 1.0 to 4.0). In the pages that follow, the multiple choice and numeric score questions will be presented in graph form for each project. A table presenting the average numeric score for each question for each project is presented below.

Table 5-1 – Project Feedback

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT159	Cost Effective Lightweight Alloys for Electric Vehicle Propulsion: Fundamental Fatigue and Creep in Advanced Lightweight Alloys	Amit Shyam (Oak Ridge National Laboratory)	5-15	3.33	3.33	2.50	2.67	3.15
MAT174	Carbon-Fiber Technology Facility (CFTF)†	Daniel Webb (Oak Ridge National Laboratory)	5-16	3.50	3.75	3.00	3.75	3.59
MAT198	Development of Tailored Fiber Placement, Multi-Functional, High-Performance Composite Material Systems for High Volume Manufacture of Structural Battery Enclosure	Venkat Aitharaju (General Motors Company)	5-17	3.38	3.63	3.63	3.38	3.53
MAT204	New Frontier in Polymer Matrix Composites via Tailored Vitrimer Chemistry†	Tomonori Saito (Oak Ridge National Laboratory)	5-18	3.50	3.50	3.67	2.83	3.44

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT211	Sustainable Lightweight Intelligent Composites (SLIC) for Next-Generation Vehicles†	Masato Mizuta (Newport Sensors, Inc.)	5-19	3.17	3.17	3.17	3.33	3.19
MAT212	Integrated Self-Sufficient Structurally Integrated Multifunctional Sensors for Autonomous Vehicles†	Serena Wang (Acellent Technologies, Inc.)	5-20	3.67	3.50	3.17	3.17	3.46
MAT236	Advanced Characterization and Computational Methods	Thomas Watkins (Oak Ridge National Laboratory)	5-21	3.50	3.67	3.50	3.33	3.56
MAT237	Materials, Lubricants, and Cooling for Heavy-Duty Electric Vehicles	Jun Qu (Oak Ridge National Laboratory)	5-22	3.33	3.67	3.67	3.67	3.58
MAT241	Advanced Processing and Additive Manufacturing for EV Propulsion: Advanced Ceramics and Processing for Wireless Charging Systems	Beth Armstrong (Oak Ridge National Laboratory)	5-23	3.67	3.67	3.83	3.50	3.67

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT242	Advanced Processing and Additive Manufacturing for EV Propulsion: Novel Ultra High Conductivity Composites for EVs	Tolga Aytug (Oak Ridge National Laboratory)	5-24	3.83	3.50	3.83	3.83	3.67
MAT265	Low-Cost Multifunctional Composites from Recycled Materials for Lighter and Smarter Vehicles	Xiaodong Li (University of Virginia)	5-25	3.33	3.50	3.33	3.17	3.40
MAT266	Development and Manufacturing of Multifunctional Energy Storage Composites (MESC) for Automotive Vehicles	Amrita Kumar (Acellent Technologies, Inc.)	5-26	2.88	3.00	3.25	3.00	3.00
MAT267	Multiscale Bioinspired Enhancement of Natural-Fiber Composites for Green Vehicles†	Lorenzo Mencatteli (Helicoid Industries, Inc.)	5-27	3.25	3.00	3.25	3.00	3.09
MAT280	Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 1 – Innovative Low-Cost Carbon Fiber and Alternative Fiber Technologies (Overview)	Amit Naskar (Oak Ridge National Laboratory)	5-28	3.63	3.25	3.50	3.63	3.42

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT281	Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 2 – Multi-Functional Materials and Structures (Overview)	Christopher Bowland (Oak Ridge National Laboratory)	5-29	3.25	3.25	3.75	3.25	3.31
MAT282	Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 3 – Circularity and Sustainability of Polymer Composites (Overview)	Nicholas Rorrer (National Renewable Energy Laboratory)	5-30	3.50	3.75	3.00	3.50	3.56
MAT283	Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 4 – Polymeric Materials and Their Composites in Additive Manufacturing (Overview)	Logan Kearney (Oak Ridge National Laboratory)	5-31	3.13	3.25	3.50	3.13	3.23
MAT286	CCP 2.0, Task 2.1 – Spatio-Temporal Damage Characterization of Multifunctional Composites	Christopher Bowland (Oak Ridge National Laboratory)	5-32	2.67	2.83	2.83	3.00	2.81

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT287	CCP 2.0, Task 2.2 – Advanced Discontinuous-Continuous Carbon Composites with Embedded Electronics in High-Rate Processes	Uday Vaidya (The University of Tennessee, Knoxville)	5-33	3.50	3.33	3.33	3.17	3.35
MAT288	CCP 2.0, Task 2.3 – Lightweight Multi-Functional Materials for Self-Sensing, Powering and Actuation	Seokpum Kim (Oak Ridge National Laboratory)	5-34	3.13	3.38	2.75	3.00	3.19
MAT289	CCP 2.0, Task 2.4 – Data-driven Lightweight Multi-Functional Composite Design for Improved Thermal Management and Energy Harvesting	Sumit Gupta (Oak Ridge National Laboratory)	5-35	2.83	3.00	3.17	2.83	2.96
MAT290	CCP 2.0, Task 1.2 – Next Generation Carbon Fibers for Vehicles from Waste Polyolefins via Selective C-H Functionalization	Logan Kearney (Oak Ridge National Laboratory)	5-36	3.50	3.50	2.38	2.88	3.28
MAT291	CCP 2.0, Task 1.4 – High-Molecular Weight Polyethylene Fibers for Self-Reinforced Composites	Amit Naskar (Oak Ridge National Laboratory)	5-37	3.50	3.50	3.50	3.50	3.50

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT292	CCP 2.0, Task 1.3 – A Viable Route from Acrylic Textiles to Low-Cost Carbon Fiber	Felix Paulauskas (Oak Ridge National Laboratory)	5-38	3.25	3.38	2.88	3.25	3.27
MAT293	CCP 2.0, Task 1.5 – High-performance Polymer-Fiber-Reinforced Polymer Composites (PFRPs)	Yao Qiao (Pacific Northwest National Laboratory)	5-39	3.33	3.33	2.83	3.00	3.23
MAT294	Bulk-Scale Ultra-Conductors via Low-C Manufacturing Pathways	Keerti Kappagantula (Pacific Northwest National Laboratory)	5-40	3.50	3.50	3.67	3.33	3.50
MAT295	High Resistivity Fe6SI-X Rolled Steels for Soft Magnetic Cores	Govindarajan Muralidharan (Oak Ridge National Laboratory)	5-41	3.67	3.33	3.67	3.33	3.46
MAT296	Near Net Shape High Strength SMCs for Axial Flux Motors	Vineet V. Joshi (Pacific Northwest National Laboratory)	5-42	3.50	3.25	3.50	3.25	3.34
MAT297	Opportunities to Support Integration of Non-Electric Propulsion Systems	Rishi Pillai (Oak Ridge National Laboratory)	5-43	3.67	3.50	3.17	3.33	3.48
MAT298	LMCP 2.0 Task 1A – Flaw Mitigation and Repair in Ultra Large Castings Composed of High Secondary Alloy Content	Saumyadeep Jana (Pacific Northwest National Laboratory)	5-44	3.25	3.13	3.13	3.13	3.16

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT299	LMCP 2.0 Task 1B – Post Processing of Castings for Energy Absorption in Crash	Piyush Upadhayay (Pacific Northwest National Laboratory)	5-45	3.00	3.00	3.00	2.50	2.94
MAT300	LMCP 2.0 Task 1C – Enhancing Mechanical Performance of HPDC Al Castings by In-Situ Ultrasonic Processing	Aashish Rohatgi (Pacific Northwest National Laboratory)	5-46	3.75	3.50	3.13	3.63	3.53
MAT301	LMCP 2.0 Task 1D-24 – Mechanical Behavior of HPDC Al Alloys with High Secondary Content	Sumit Bahl (Oak Ridge National Laboratory)	5-47	3.50	3.67	3.83	3.67	3.65
MAT302	LMCP 2.0 Task 2A-24 – Design of Sustainable Lightweight Cast Alloys for HPDC	Amit Shyam (Oak Ridge National Laboratory)	5-48	3.00	3.00	3.00	3.00	3.00
MAT303	LMCP 2.0 Task 2B-24 – Optimization of T5 Heat Treatments in Diecast Alloys	Dongwon Shin (Oak Ridge National Laboratory)	5-49	3.38	3.38	3.38	3.38	3.38
MAT304	LMCP 2.0 Task 2C-24 – Fundamentals of Solidification for LW Alloys with High Secondary Content	Ying Yang (Oak Ridge National Laboratory)	5-50	2.75	3.50	2.25	3.00	3.09

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT305	LMCP 2.0 Task 2E-24 – Upcycling of Secondary LW Alloys Using Additive Manufacturing	Jovid Rakhmonov (Oak Ridge National Laboratory)	5-51	3.50	3.75	3.25	3.50	3.59
MAT306	LMCP 2.0 Task 3A-A – Thermo-Mechanical Processing Techniques to Enable a Versatile and Recyclable 6xxx Unialloy and LMCP 2.0 Task 3A-B – Formability and Edge Stretchability of Recyclable 6xxx Al Alloys	Mert Efe (Pacific Northwest National Laboratory)	5-52	3.25	3.63	3.50	3.38	3.48
MAT308	LMCP 2.0 Task 3B – Solid Phase Processing of Mg Alloys for Improved Performance	Mageshwari Komarasamy (Pacific Northwest National Laboratory)	5-53	3.00	3.50	3.17	2.83	3.25
MAT309	LMCP 2.0 Task 4A-24 – Scalable Surface Alloyed Coatings on Magnesium High Pressure Die Casting Parts	Vineet V. Joshi (Pacific Northwest National Laboratory)	5-54	3.17	3.33	3.17	3.00	3.23
MAT310	Zero-Emission Natural Fiber Composites (ZENC) for Fire-Detecting Fireproof EV Battery Enclosure	Maria Feng (Columbia University)	5-55	2.75	3.13	3.00	2.88	2.98

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT311	Transforming Carbon Fiber-Reinforced Polymer Wastes into Recyclable Structural Automotive Components	Jinwen Zhang (Washington State University)	5-56	3.63	3.38	3.38	3.50	3.45
MAT312	Cost-effective Circular Manufacturing of Lightweight Vehicle Shells and Battery Casing by Recyclable-by-Design Polymer Composites	Chen Wang (University of Utah)	5-57	3.13	3.13	3.50	3.13	3.17
MAT313	Sustainable Circular Manufacturing of Automotive Composites	Jay Keasling (University of California at Berkeley)	5-58	3.33	3.33	3.17	3.50	3.33
MAT314	CCP 2.0, Task 3.1 – Waste Plastics to High-Value Polymers	Daniel Merkel (Pacific Northwest National Laboratory)	5-59	3.25	3.25	2.50	3.25	3.16
MAT315	CCP 2.0, Task 3.2 – Circular Economy for Unwanted Shredded Automotive Waste (CE-SAW)	Caitlyn Clarkson (Oak Ridge National Laboratory)	5-60	3.63	3.38	3.38	3.00	3.39

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT316	CCP 2.0, Task 3.3 – Materials and Manufacturing Innovation for Sustainable Automotive Composites – Bioderivable and Recyclable Composites	Nicholas Rorrer (National Renewable Energy Laboratory)	5-61	3.75	3.75	3.75	3.50	3.72
MAT317	CCP 2.0, Task 3.4 – High Throughput Recycling of Long CF from Cured Thermoset Composites	Wenbin Kuang (Pacific Northwest National Laboratory)	5-62	3.63	3.50	3.25	3.75	3.53
MAT318	CCP 2.0, Task 4.3 – Recyclable Cellulose Fiber Reinforced Vitrimer Composites	Amit Naskar (Oak Ridge National Laboratory)	5-63	4.00	4.00	4.00	3.50	3.94
MAT319	CCP 2.0, Task 4.1 – Precise High-Speed Manufacturing of Thermoplastic Composites Using Additive – Compression Molding (AM-CM)	Vipin Kumar (Oak Ridge National Laboratory)	5-64	3.50	3.67	3.50	3.33	3.56
MAT320	CCP 2.0, Task 4.2 – Designing and Manufacturing Adaptable Large-scale Hierarchical Materials with Tailorable Toughness	Seokpum Kim (Oak Ridge National Laboratory)	5-65	3.17	3.17	2.83	3.00	3.10

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT321	Bio-inspired High-Performance 3D Printed Carbon Composite with Sensing: Surface Modification and AI/ML Approaches	Rigoberto Advincula (Oak Ridge National Laboratory)	5-66	3.50	3.33	3.50	3.67	3.44
MAT322	Printable Creep-Resistant Lightweight Conductors	Alex Plotkowski (Oak Ridge National Laboratory)	5-67	3.50	3.50	3.50	3.25	3.47
MAT323	CCP 2.0, Task 1.6 – Natural Fiber Composites with Low Carbon Resin Matrix†	Wenbin Kuang (Pacific Northwest National Laboratory)	5-68	3.50	3.17	3.17	3.00	3.23
MAT324	CCP 2.0, Task 2.5 – Electrospun Nanofiber Networks for Multifunctional Composites†	Christopher Bowland (Oak Ridge National Laboratory)	5-69	3.50	4.00	3.50	3.50	3.75
MAT325	CCP 2.0, Task 2.6 – Sensing and Fatigue Behavior Characterization of Multifunctional Composites†	Maria Feng (Columbia University)	5-70	2.88	2.75	2.50	3.00	2.78
MAT326	CCP 2.0, Task 4.4 – 3D Printing of High-Fidelity Heteroatom Containing Functional Carbons for Thermal Management†	Joshua Damron (Oak Ridge National Laboratory)	5-71	4.00	4.00	3.75	3.75	3.94

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
MAT340	CCP 2.0, Task 1.1 – Synthesis and Melt Spinning of Renewable Pitch for Low-Cost Carbon Fiber Precursor†	Michael Toomey (Oak Ridge National Laboratory)	5-72	3.00	3.50	1.50	3.50	3.13
Overall Average				**3.36**	**3.41**	**3.24**	**3.26**	**3.36**

† Denotes a poster presentation.

Presentation Number:
MAT159
Presentation Title:
Cost Effective Lightweight Alloys for Electric Vehicle Propulsion: Fundamental Fatigue and Creep in Advanced Lightweight Alloys
Principal Investigator:
Amit Shyam, Oak Ridge National Laboratory

Presenter
Amit Shyam, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

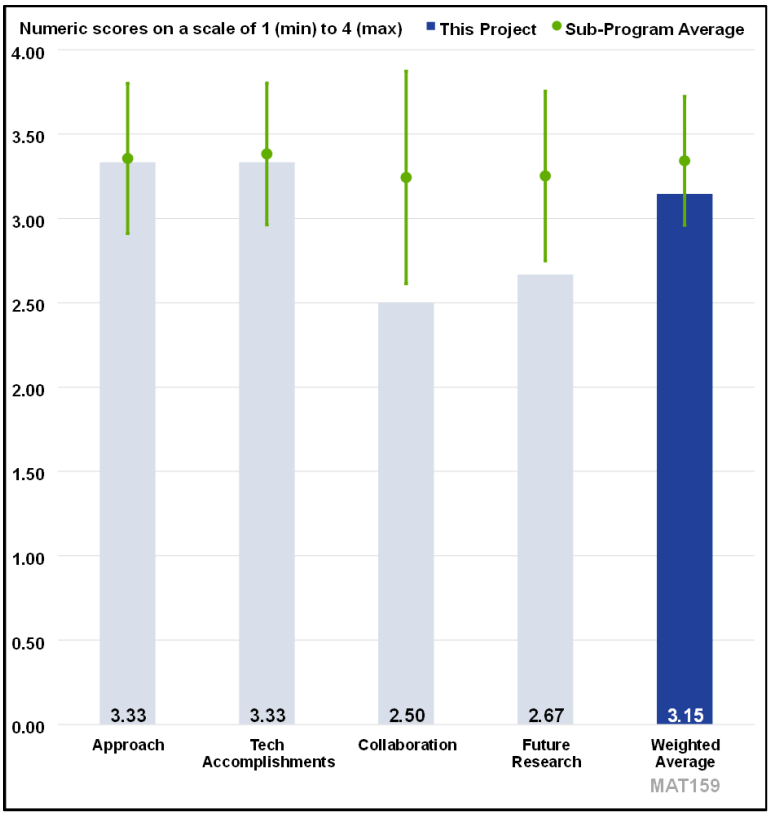

Figure 5-1 - Presentation Number: MAT159 Presentation Title: Cost Effective Lightweight Alloys for Electric Vehicle Propulsion: Fundamental Fatigue and Creep in Advanced Lightweight Alloys Principal Investigator: Amit Shyam, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT159_Shyam_2025_o.pdf

Presentation Number:
MAT174
Presentation Title:
Carbon-Fiber Technology Facility (CFTF)
Principal Investigator:
Daniel Webb, Oak Ridge National Laboratory

Presenter
Daniel Webb, Oak Ridge National Laboratory

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

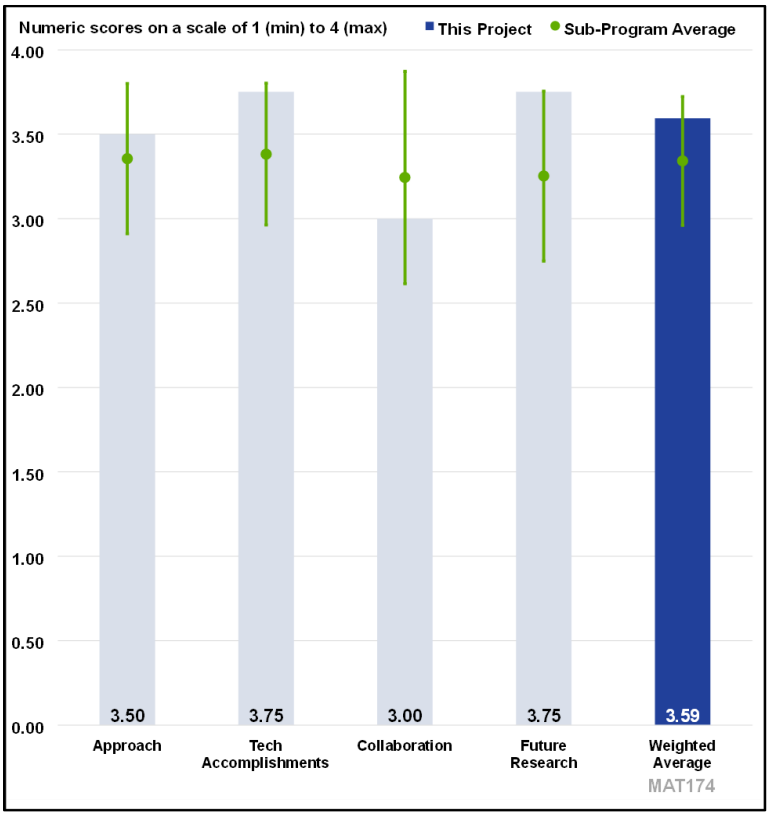

Figure 5-2 - Presentation Number: MAT174 Presentation Title: Carbon-Fiber Technology Facility (CFTF) Principal Investigator: Daniel Webb, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT174_Webb_2025_p.pdf

Presentation Number:
MAT198
Presentation Title:
Development of Tailored Fiber Placement, Multi-Functional, High-Performance Composite Material Systems for High Volume Manufacture of Structural Battery Enclosure
Principal Investigator:
Venkat Aitharaju, General Motors

Presenter
Venkat Aitharaju, General Motors

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

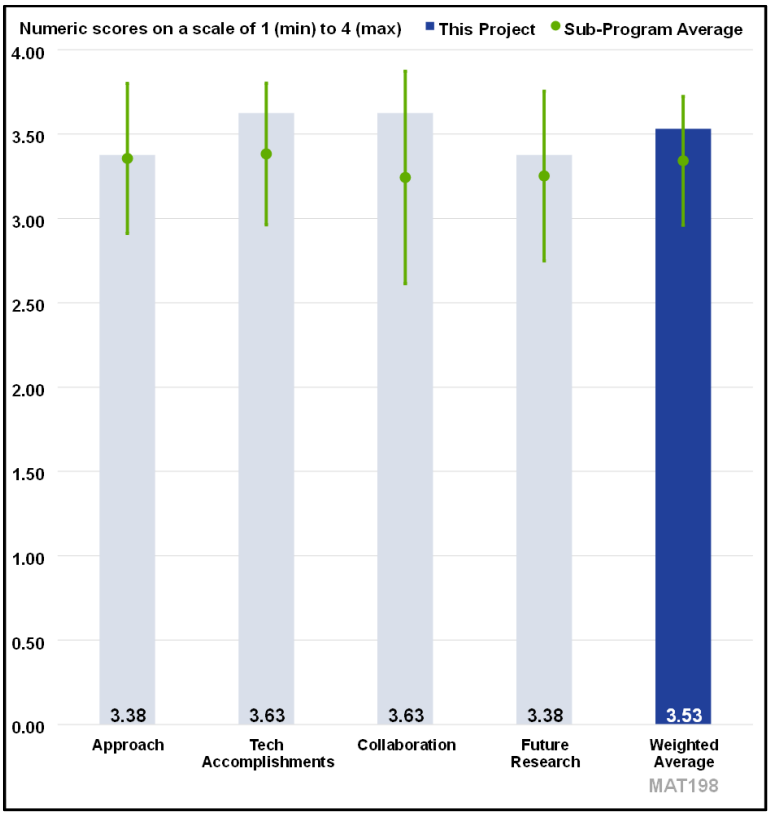

Figure 5-3 - Presentation Number: MAT198 Presentation Title: Development of Tailored Fiber Placement, Multi-Functional, High-Performance Composite Material Systems for High Volume Manufacture of Structural Battery Enclosure Principal Investigator: Venkat Aitharaju, General Motors

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT198_Aitharaju_2025.pdf

Presentation Number:
MAT204
Presentation Title:
New Frontier in Polymer Matrix Composites via Tailored Vitrimer Chemistry
Principal Investigator:
Tomonori Saito, Oak Ridge National Laboratory

Presenter
Tomonori Saito, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

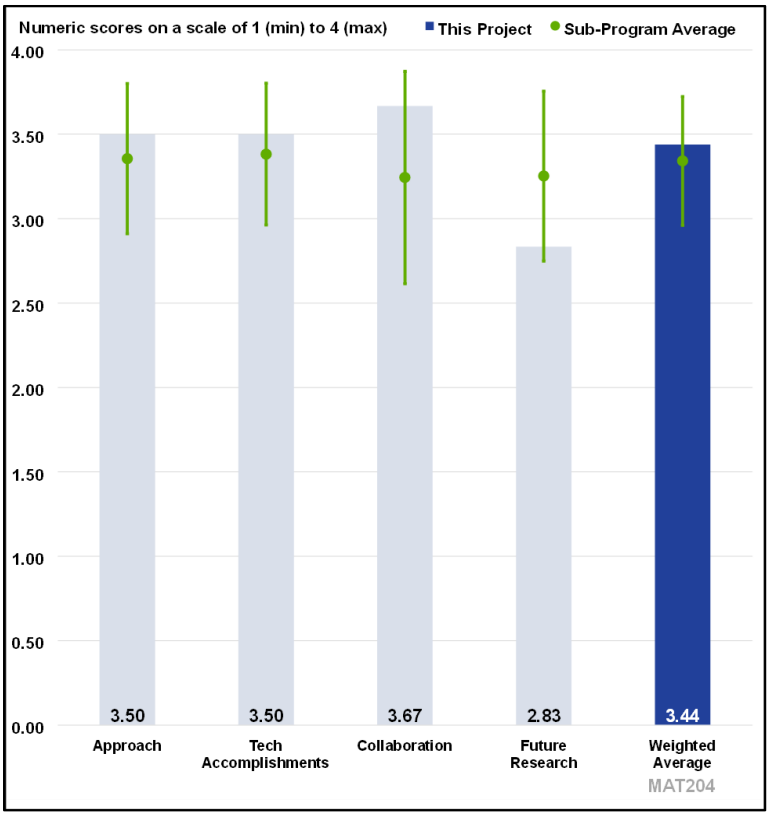

Figure 5-4 - Presentation Number: MAT204 Presentation Title: New Frontier in Polymer Matrix Composites via Tailored Vitrimer Chemistry Principal Investigator: Tomonori Saito, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT204_Saito_2025_p.pdf

Presentation Number:
MAT211
Presentation Title:
Sustainable Lightweight Intelligent Composites (SLIC) for Next-Generation Vehicles
Principal Investigator:
Masato Mizuta, Newport Sensors, Inc.

Presenter
Masato Mizuta, Newport Sensors, Inc.

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

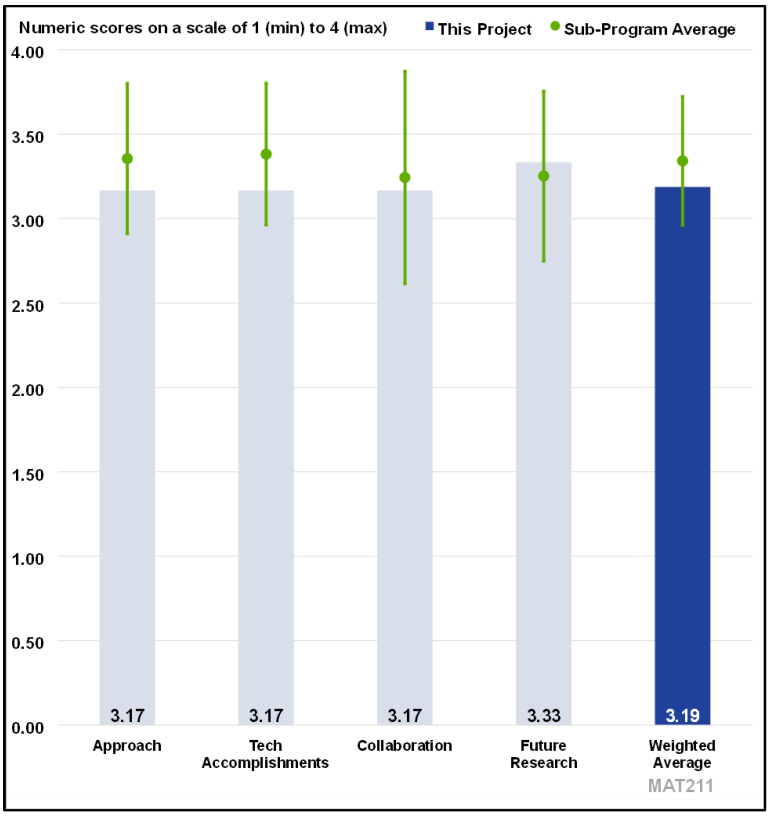

Figure 5-5 - Presentation Number: MAT211 Presentation Title: Sustainable Lightweight Intelligent Composites (SLIC) for Next-Generation Vehicles Principal Investigator: Masato Mizuta, Newport Sensors, Inc.

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT211_Mizuta_2025_p.pdf

Presentation Number:
MAT212
Presentation Title:
Integrated Self-Sufficient Structurally Integrated Multifunctional Sensors for Autonomous Vehicles
Principal Investigator:
Serena Wang, Acellent Technologies, Inc.

Presenter
Amrita Kumar, Acellent Technologies, Inc.

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

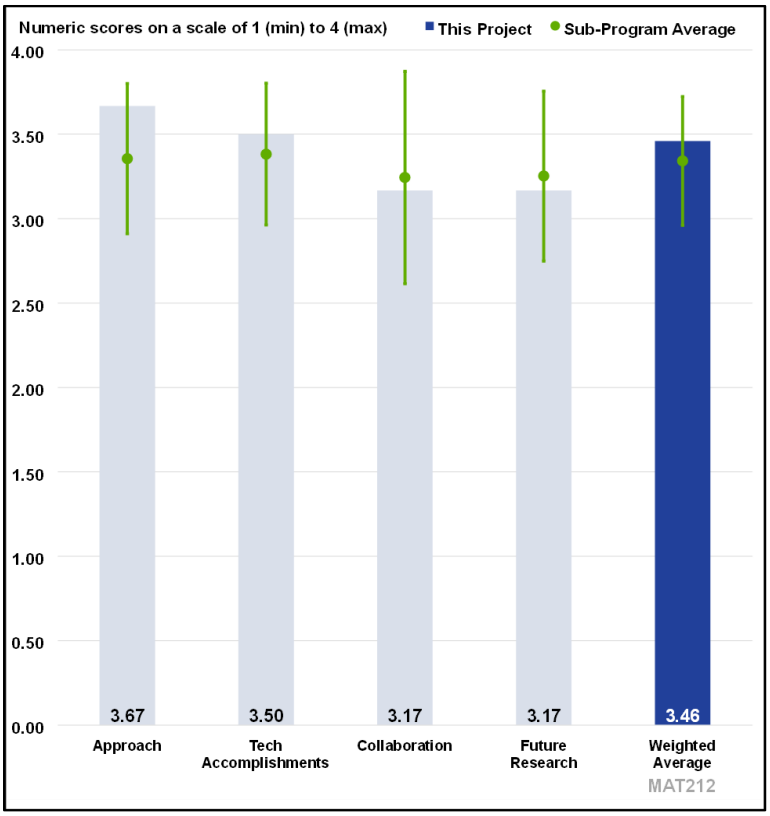

Figure 5-6 - Presentation Number: MAT212 Presentation Title: Integrated Self-Sufficient Structurally Integrated Multifunctional Sensors for Autonomous Vehicles Principal Investigator: Serena Wang, Acellent Technologies, Inc.

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT212_Wang_2025_p.pdf

Presentation Number:
MAT236
Presentation Title:
Advanced Characterization and Computational Methods
Principal Investigator:
Thomas Watkins, Oak Ridge National Laboratory

Presenter
Thomas Watkins, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 67% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 33% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

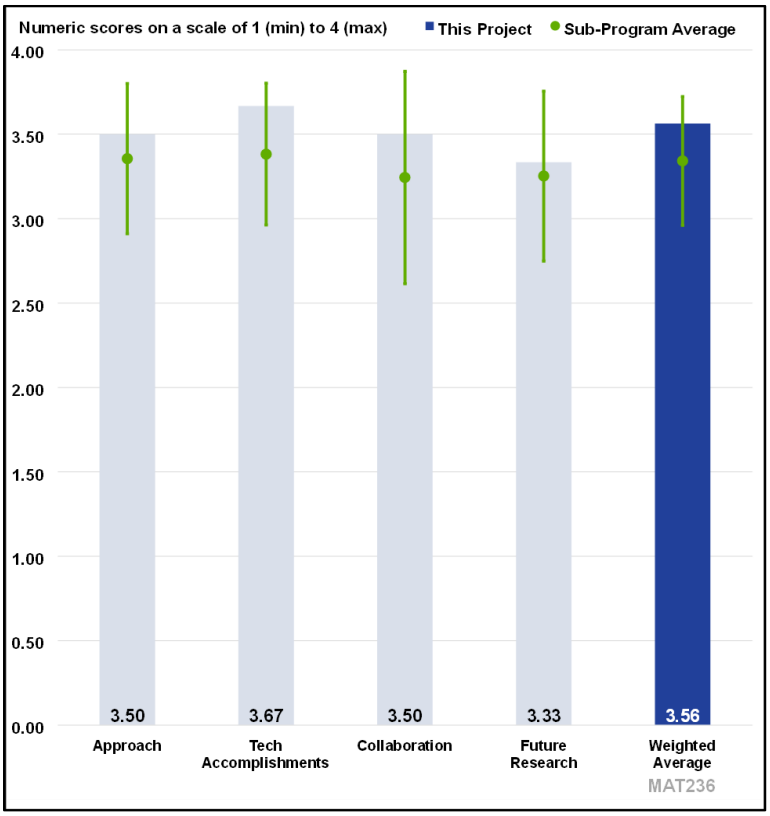

Figure 5-7 - Presentation Number: MAT236 Presentation Title: Advanced Characterization and Computational Methods Principal Investigator: Thomas Watkins, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT236_Watkins_2025_o.pdf

Presentation Number:
MAT237
Presentation Title:
Materials, Lubricants, and Cooling for Heavy-Duty Electric Vehicles
Principal Investigator:
Jun Qu, Oak Ridge National Laboratory

Presenter
Jun Qu, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

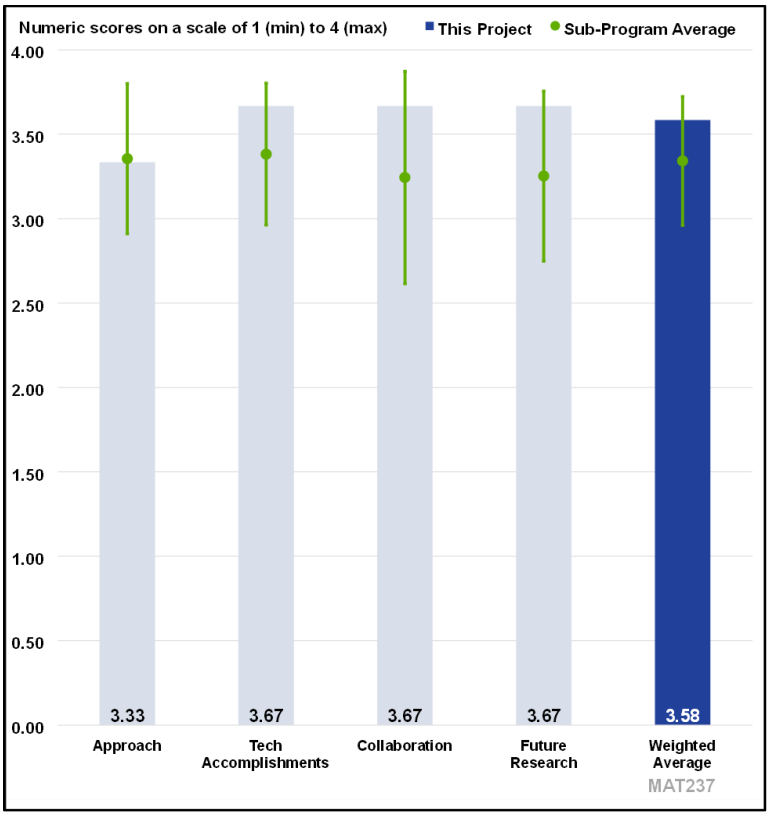

Figure 5-8 - Presentation Number: MAT237 Presentation Title: Materials, Lubricants, and Cooling for Heavy-Duty Electric Vehicles Principal Investigator: Jun Qu, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT237_Qu_2025_o.pdf

Presentation Number:
MAT241
Presentation Title:
Advanced Processing and Additive Manufacturing for EV Propulsion: Advanced Ceramics and Processing for Wireless Charging Systems
Principal Investigator:
Beth Armstrong, Oak Ridge National Laboratory

Presenter
Beth Armstrong, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 67% of reviewers felt that the resources were sufficient, 33% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

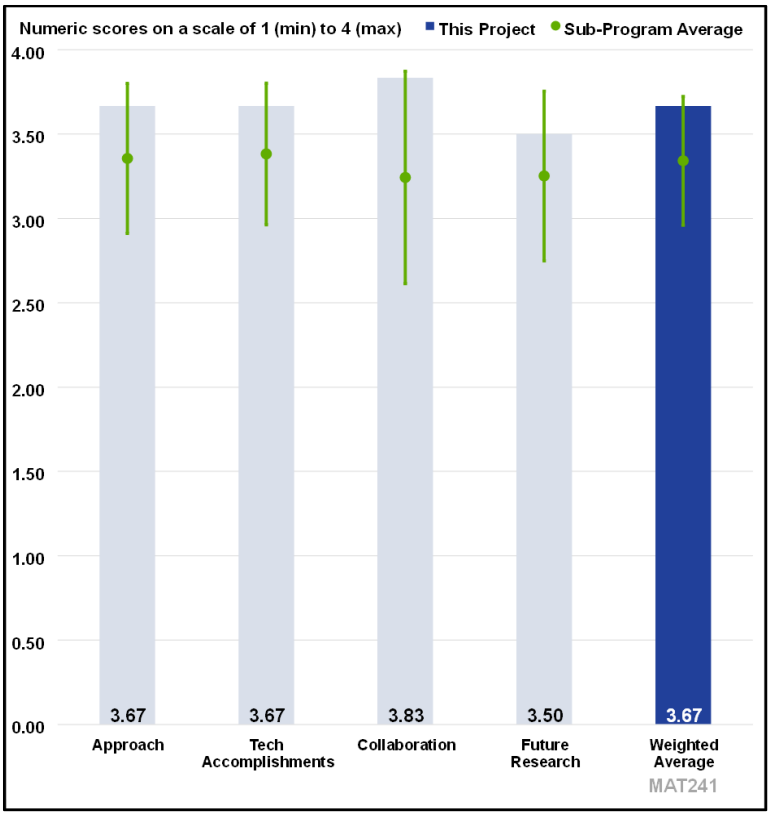

Figure 5-9 - Presentation Number: MAT241 Presentation Title: Advanced Processing and Additive Manufacturing for EV Propulsion: Advanced Ceramics and Processing for Wireless Charging Systems Principal Investigator: Beth Armstrong, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT241_Armstrong_2025_o.pdf

Presentation Number:
MAT242
Presentation Title:
Advanced Processing and Additive Manufacturing for EV Propulsion: Novel Ultra High Conductivity Composites for EVs
Principal Investigator:
Tolga Aytug, Oak Ridge National Laboratory

Presenter
Tolga Aytug, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

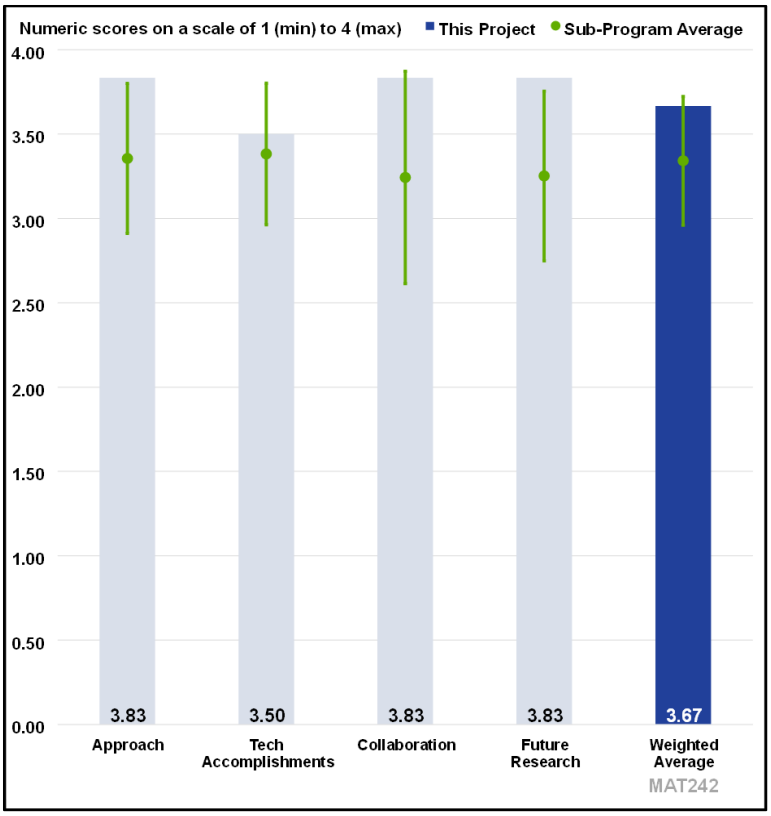

Figure 5-10 - Presentation Number: MAT242 Presentation Title: Advanced Processing and Additive Manufacturing for EV Propulsion: Novel Ultra High Conductivity Composites for EVs Principal Investigator: Tolga Aytug, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT242_Aytug_2025_o.pdf

Presentation Number:
MAT265
Presentation Title:
Low-Cost Multifunctional Composites from Recycled Materials for Lighter and Smarter Vehicles
Principal Investigator:
Xiaodong Li, University of Virginia

Presenter
Xiaodong Li, University of Virginia

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 67% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 33% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

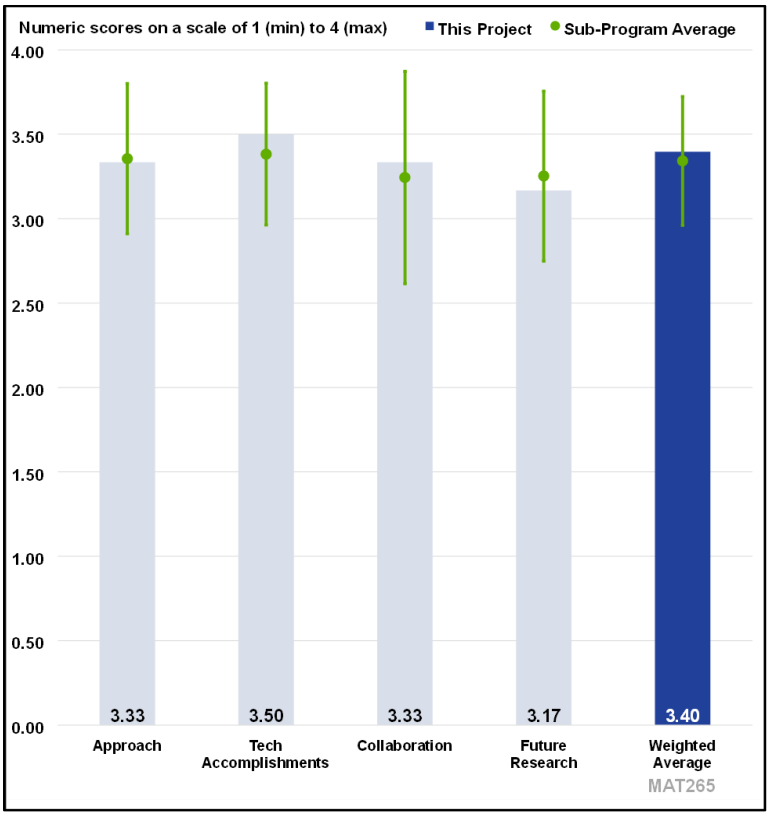

Figure 5-11 - Presentation Number: MAT265 Presentation Title: Low-Cost Multifunctional Composites from Recycled Materials for Lighter and Smarter Vehicles Principal Investigator: Xiaodong Li, University of Virginia

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT265_Li_2025_o.pdf

Presentation Number:
MAT266
Presentation Title:
Development and Manufacturing of Multifunctional Energy Storage Composites (MESC) for Automotive Vehicles
Principal Investigator:
Amrita Kumar, Acellent Technologies, Inc.

Presenter
Amrita Kumar, Acellent Technologies, Inc.

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

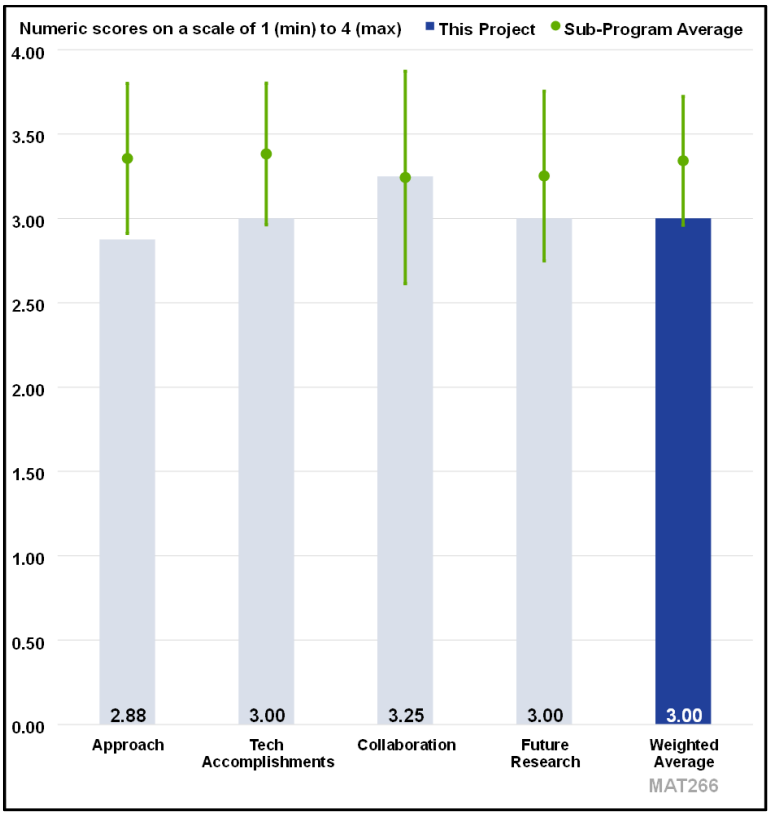

Figure 5-12 - Presentation Number: MAT266 Presentation Title: Development and Manufacturing of Multifunctional Energy Storage Composites (MESC) for Automotive Vehicles Principal Investigator: Amrita Kumar, Acellent Technologies, Inc.

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT266_Kumar_2025_o.pdf

Presentation Number:
MAT267
Presentation Title:
Multiscale Bioinspired Enhancement of Natural-Fiber Composites for Green Vehicles
Principal Investigator:
Lorenzo Mencatteli, Helicoid Industries, Inc.

Presenter
Paul Myslinski, Helicoid Industries, Inc.

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

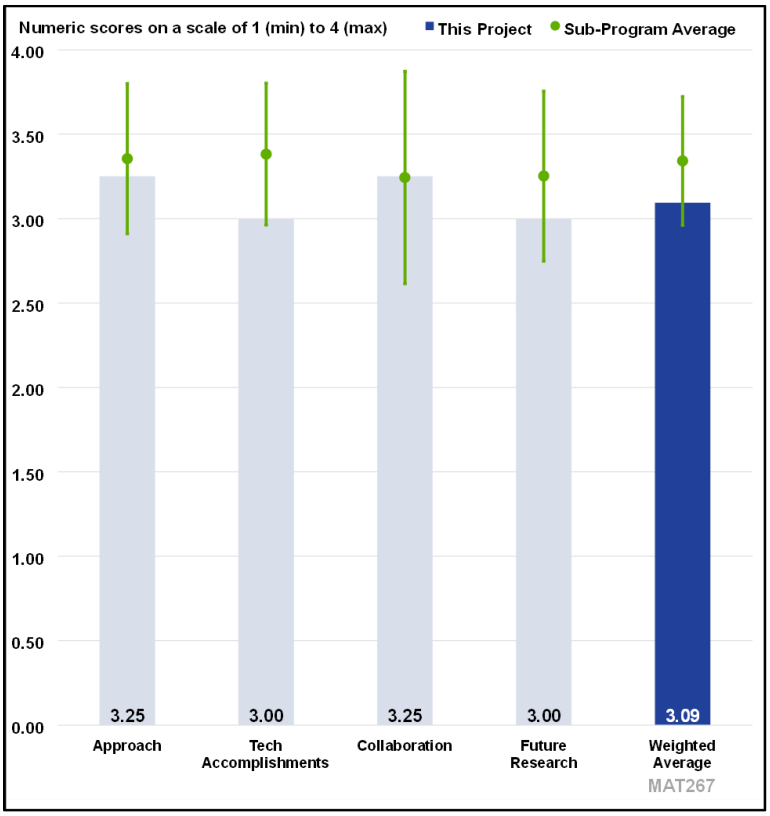

Figure 5-13 - Presentation Number: MAT267 Presentation Title: Multiscale Bioinspired Enhancement of Natural-Fiber Composites for Green Vehicles Principal Investigator: Lorenzo Mencatteli, Helicoid Industries, Inc.

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT267_Mencattelli_2025_p.pdf

Presentation Number:
MAT280
Presentation Title:
Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 1 – Innovative Low-Cost Carbon Fiber and Alternative Fiber Technologies (Overview)
Principal Investigator:
Amit Naskar, Oak Ridge National Laboratory

Presenter
Amit Naskar/Felix Paulauskas, Oak Ridge National Laboratory

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

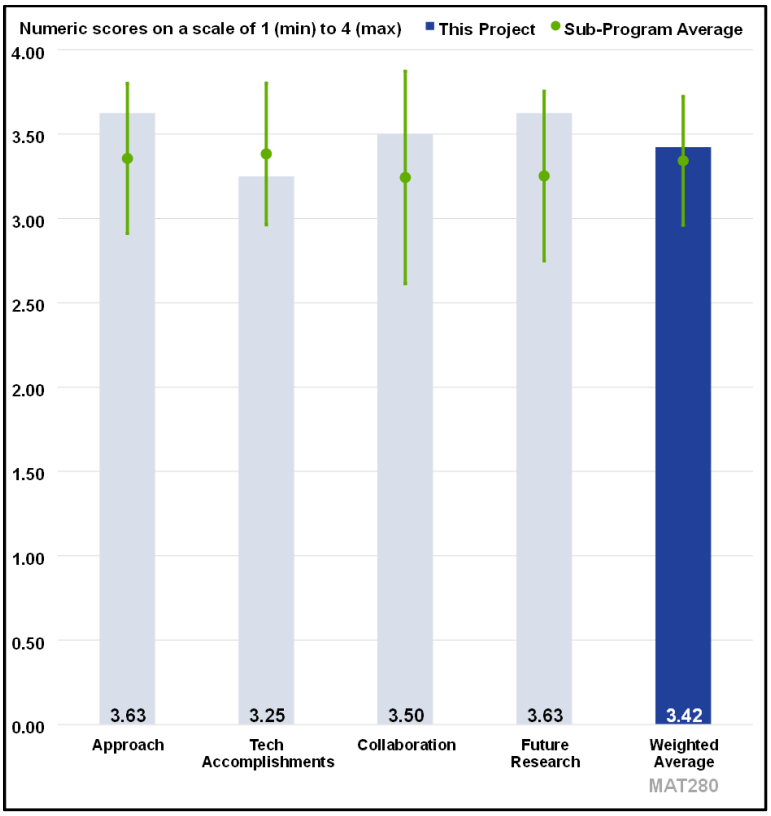

Figure 5-14 - Presentation Number: MAT280 Presentation Title: Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 1 – Innovative Low-Cost Carbon Fiber and Alternative Fiber Technologies (Overview) Principal Investigator: Amit Naskar, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT280_Naskar_Paulauskas_2025_o.pdf

Presentation Number:
MAT281
Presentation Title:
Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 2 – Multi-Functional Materials and Structures (Overview)
Principal Investigator:
Christopher Bowland, Oak Ridge National Laboratory

Presenter
Christopher Bowland/Seokpum Kim, Oak Ridge National Laboratory

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

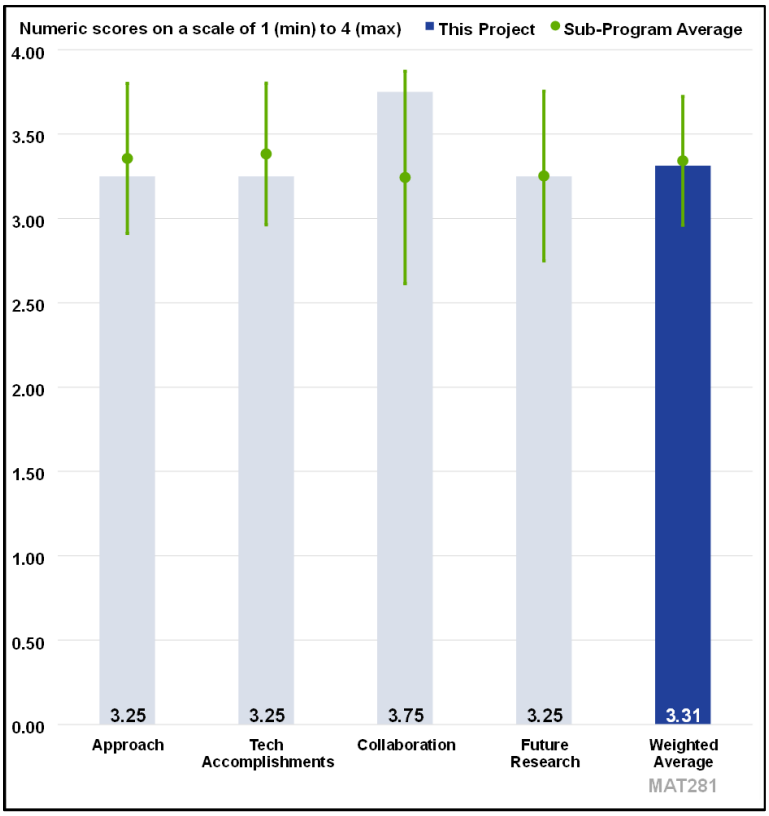

Figure 5-15 - Presentation Number: MAT281 Presentation Title: Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 2 – Multi-Functional Materials and Structures (Overview) Principal Investigator: Christopher Bowland, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT281_Bowland_Kim_2025_o.pdf

Presentation Number:
MAT282
Presentation Title:
Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 3 – Circularity and Sustainability of Polymer Composites (Overview)
Principal Investigator:
Nicholas Rorrer, National Renewable Energy Laboratory

Presenter
Nicholas Rorrer/Caitlyn Clarkson, National Renewable Energy Laboratory/Oak Ridge National Laboratory

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

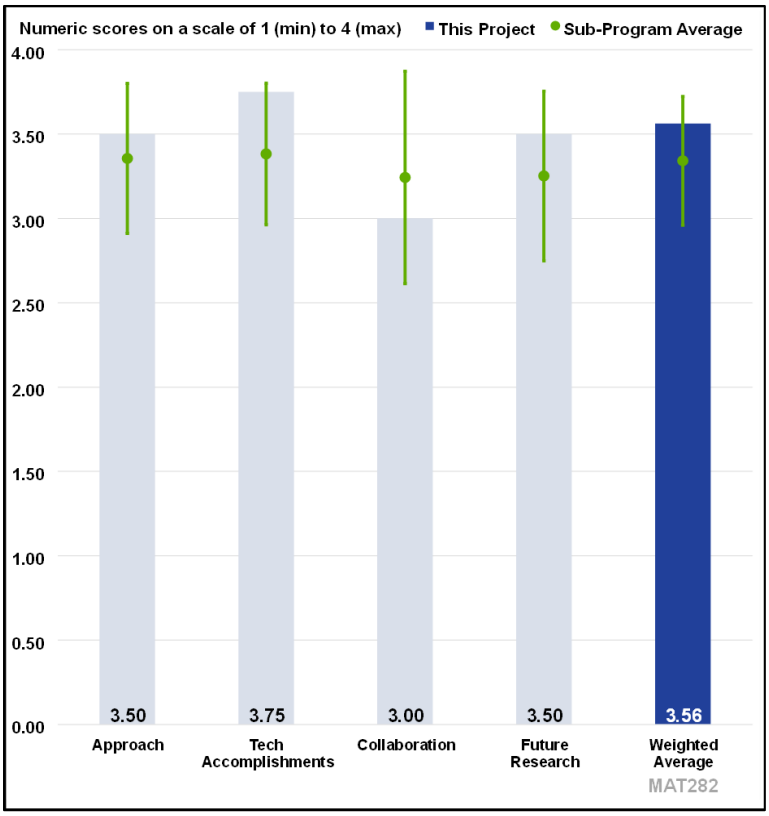

Figure 5-16 - Presentation Number: MAT282 Presentation Title: Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 3 – Circularity and Sustainability of Polymer Composites (Overview) Principal Investigator: Nicholas Rorrer, National Renewable Energy Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT282_Rorrer_Clarkson_2025_o.pdf

Presentation Number:
MAT283
Presentation Title:
Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 4 – Polymeric Materials and Their Composites in Additive Manufacturing (Overview)
Principal Investigator:
Logan Kearney, Oak Ridge National Laboratory

Presenter
Logan Kearney/Vipin Kumar, Oak Ridge National Laboratory

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

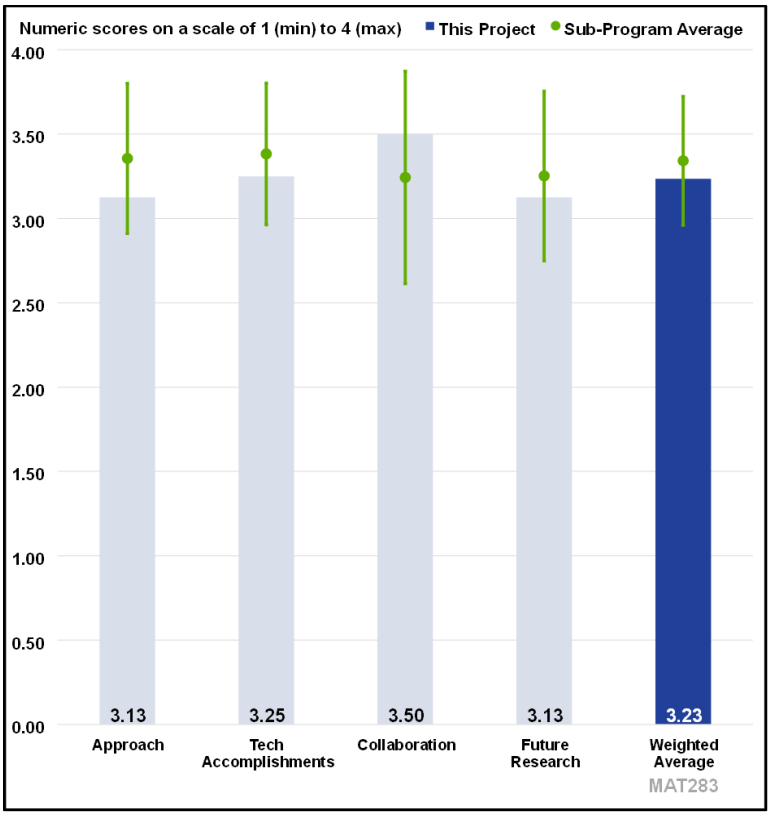

Figure 5-17 - Presentation Number: MAT283 Presentation Title: Materials and Manufacturing Innovation for Sustainable Automotive Composites: Thrust 4 – Polymeric Materials and Their Composites in Additive Manufacturing (Overview) Principal Investigator: Logan Kearney, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT283_Kearney_Kumar_2025_o.pdf

Presentation Number:
MAT286
Presentation Title:
CCP 2.0, Task 2.1 – Spatio-Temporal Damage Characterization of Multifunctional Composites
Principal Investigator:
Christopher Bowland, Oak Ridge National Laboratory

Presenter
Christopher Bowland, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

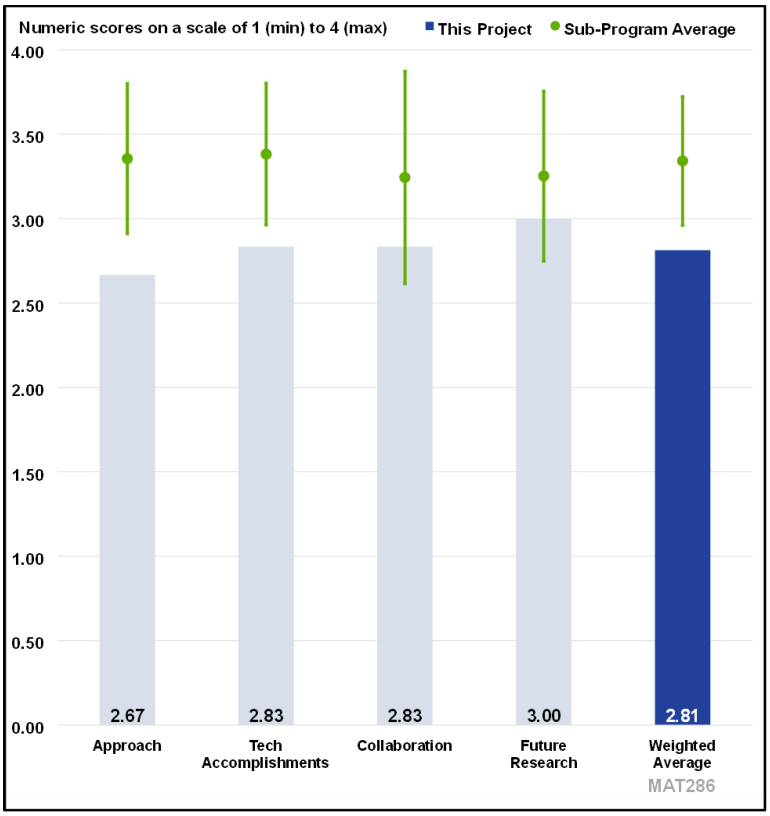

Figure 5-18 - Presentation Number: MAT286 Presentation Title: CCP 2.0, Task 2.1 – Spatio-Temporal Damage Characterization of Multifunctional Composites Principal Investigator: Christopher Bowland, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT286_Bowland_2025_o.pdf

Presentation Number:
MAT287
Presentation Title:
CCP 2.0, Task 2.2 – Advanced Discontinuous-Continuous Carbon Composites with Embedded Electronics in High-Rate Processes
Principal Investigator:
Uday Vaidya, The University of Tennessee, Knoxville

Presenter
Uday Vaidya, The University of Tennessee, Knoxville

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

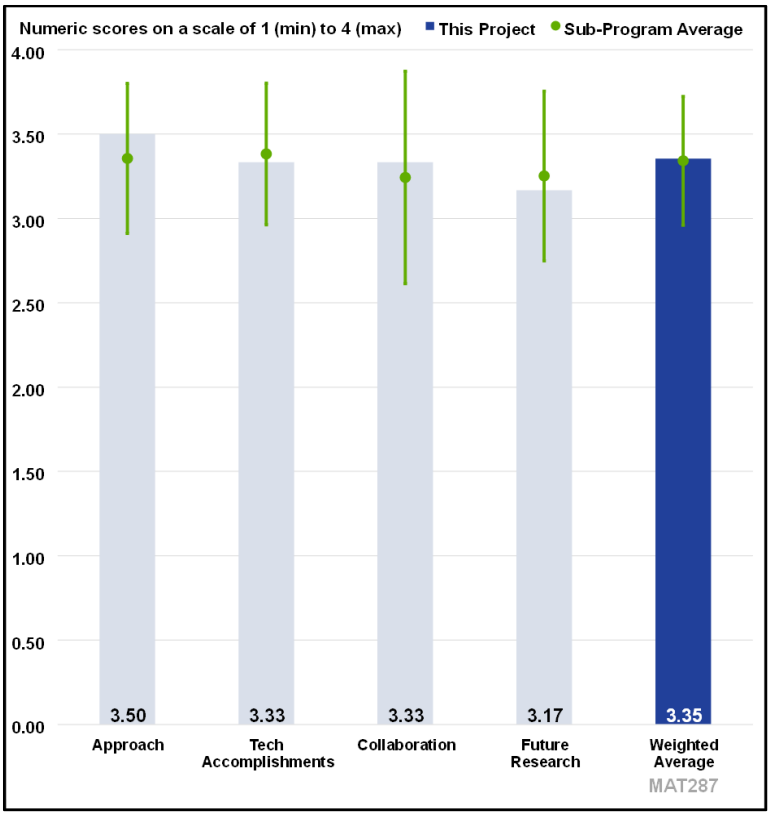

Figure 5-19 - Presentation Number: MAT287 Presentation Title: CCP 2.0, Task 2.2 – Advanced Discontinuous-Continuous Carbon Composites with Embedded Electronics in High-Rate Processes Principal Investigator: Uday Vaidya, The University of Tennessee, Knoxville

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT287_Vaidya_2025_o.pdf

Presentation Number:
MAT288
Presentation Title:
CCP 2.0, Task 2.3 – Lightweight Multi-Functional Materials for Self-Sensing, Powering and Actuation
Principal Investigator:
Seokpum Kim, Oak Ridge National Laboratory

Presenter
Seokpum Kim, Oak Ridge National Laboratory

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

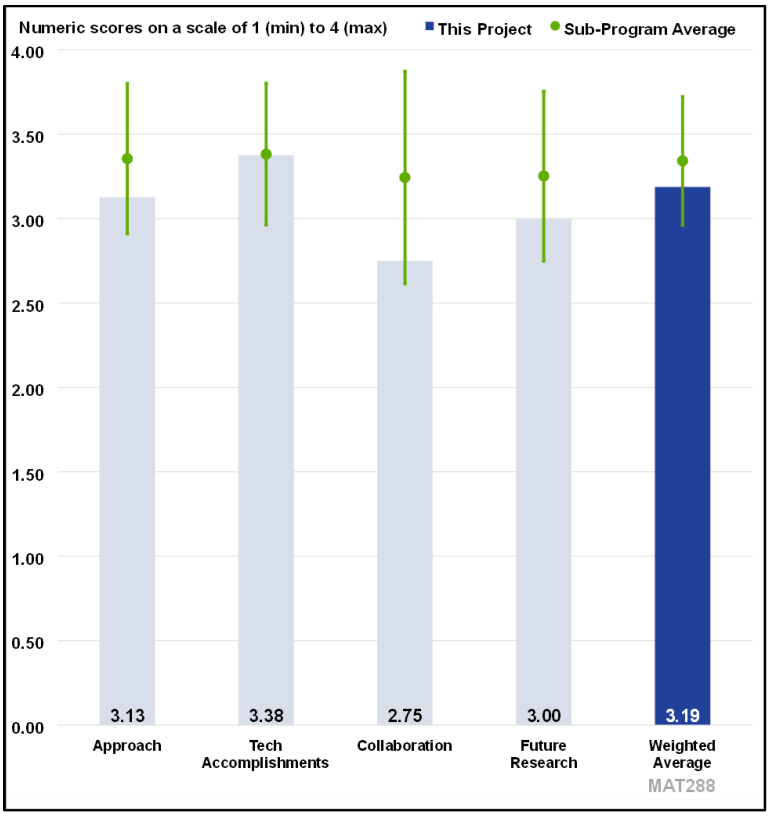

Figure 5-20 - Presentation Number: MAT288 Presentation Title: CCP 2.0, Task 2.3 – Lightweight Multi-Functional Materials for Self-Sensing, Powering and Actuation Principal Investigator: Seokpum Kim, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT288_Kim_2025_o.pdf

Presentation Number:
MAT289
Presentation Title:
CCP 2.0, Task 2.4 – Data-driven Lightweight Multi-Functional Composite Design for Improved Thermal Management and Energy Harvesting
Principal Investigator:
Sumit Gupta, Oak Ridge National Laboratory

Presenter
Sumit Gupta, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

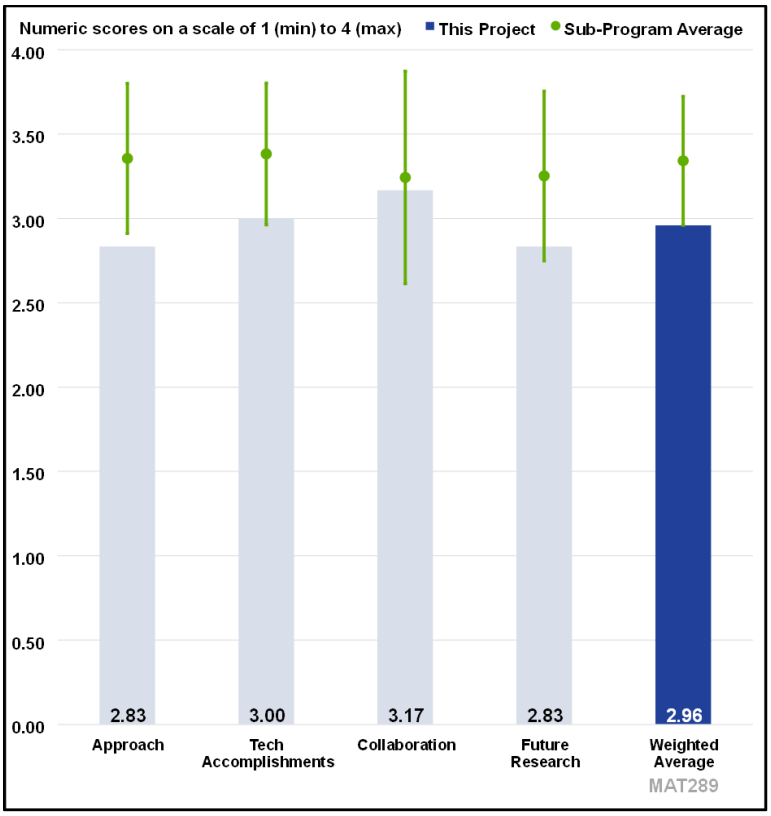

Figure 5-21 - Presentation Number: MAT289 Presentation Title: CCP 2.0, Task 2.4 – Data-driven Lightweight Multi-Functional Composite Design for Improved Thermal Management and Energy Harvesting Principal Investigator: Sumit Gupta, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT289_Gupta_2025_o.pdf

Presentation Number:
MAT290
Presentation Title:
CCP 2.0, Task 1.2 – Next Generation Carbon Fibers for Vehicles from Waste Polyolefins via Selective C-H Functionalization
Principal Investigator:
Logan Kearney, Oak Ridge National Laboratory

Presenter
Logan Kearney, Oak Ridge National Laboratory

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

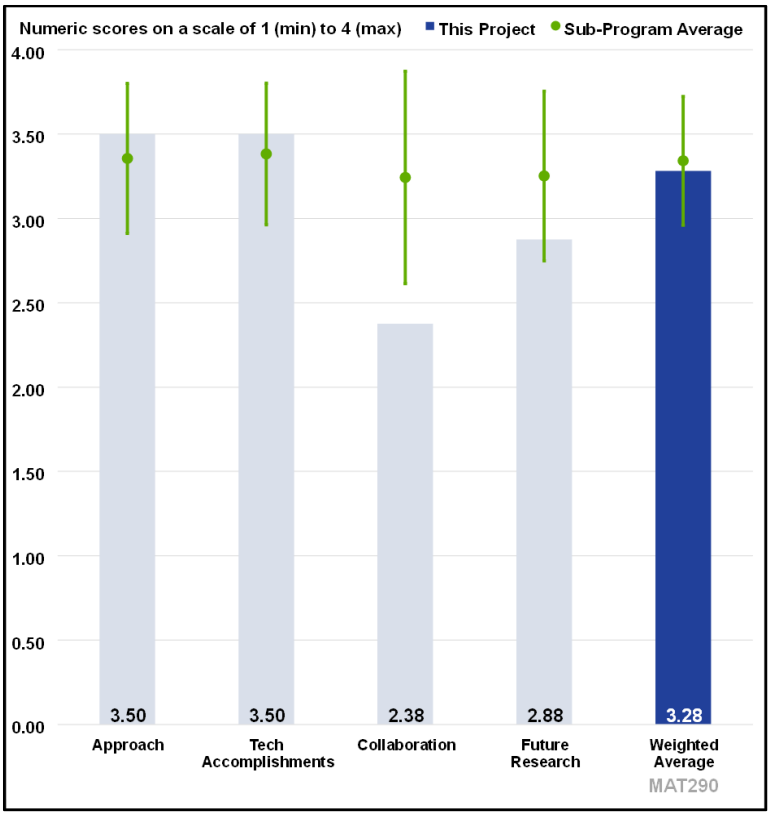

Figure 5-22 - Presentation Number: MAT290 Presentation Title: CCP 2.0, Task 1.2 – Next Generation Carbon Fibers for Vehicles from Waste Polyolefins via Selective C-H Functionalization Principal Investigator: Logan Kearney, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT290_Kearney_2025_o.pdf

Presentation Number:
MAT291
Presentation Title:
CCP 2.0, Task 1.4 – High-Molecular Weight Polyethylene Fibers for Self-Reinforced Composites
Principal Investigator:
Amit Naskar, Oak Ridge National Laboratory

Presenter
Amit Naskar, Oak Ridge National Laboratory

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 50% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 50% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

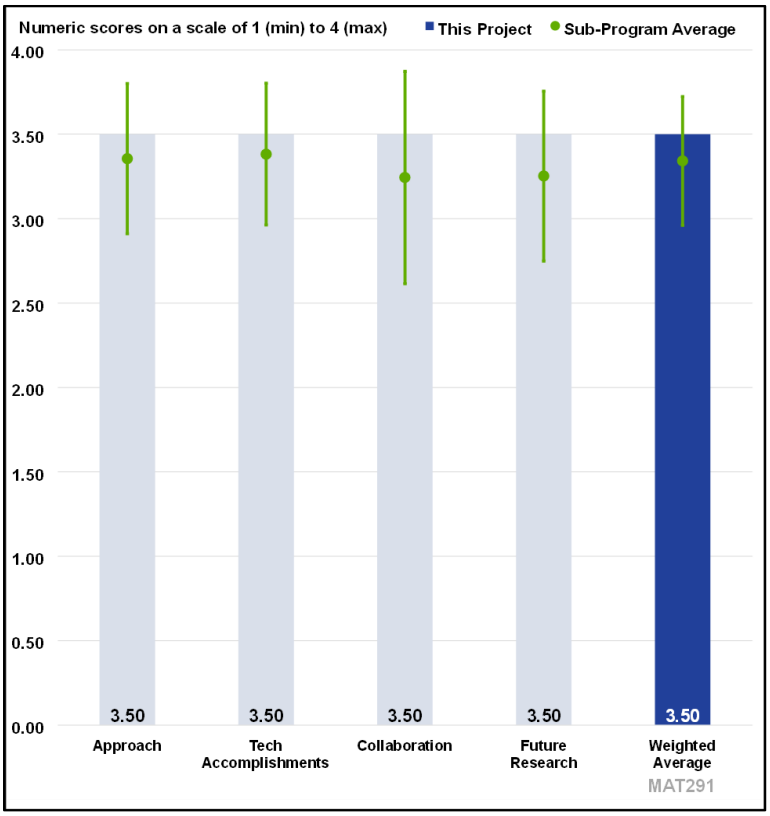

Figure 5-23 - Presentation Number: MAT291 Presentation Title: CCP 2.0, Task 1.4 – High-Molecular Weight Polyethylene Fibers for Self-Reinforced Composites Principal Investigator: Amit Naskar, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT291_Naskar_2025_o.pdf

Presentation Number:
MAT292
Presentation Title:
CCP 2.0, Task 1.3 – A Viable Route from Acrylic Textiles to Low-Cost Carbon Fiber
Principal Investigator:
Felix Paulauskas, Oak Ridge National Laboratory

Presenter
Felix Paulauskas, Oak Ridge National Laboratory

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 75% of reviewers felt that the resources were sufficient, 25% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

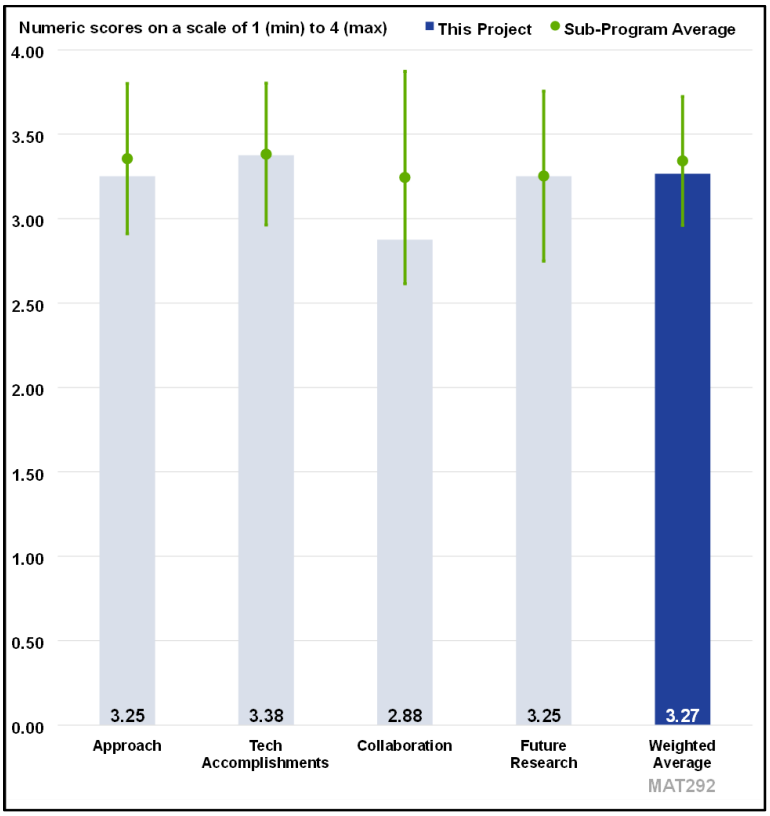

Figure 5-24 - Presentation Number: MAT292 Presentation Title: CCP 2.0, Task 1.3 – A Viable Route from Acrylic Textiles to Low-Cost Carbon Fiber Principal Investigator: Felix Paulauskas, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT292_Paulauskas_2025_o.pdf

Presentation Number:
MAT293
Presentation Title:
CCP 2.0, Task 1.5 – High-performance Polymer-Fiber-Reinforced Polymer Composites (PFRPs)
Principal Investigator:
Yao Qiao, Pacific Northwest National Laboratory

Presenter
Yao Qiao, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

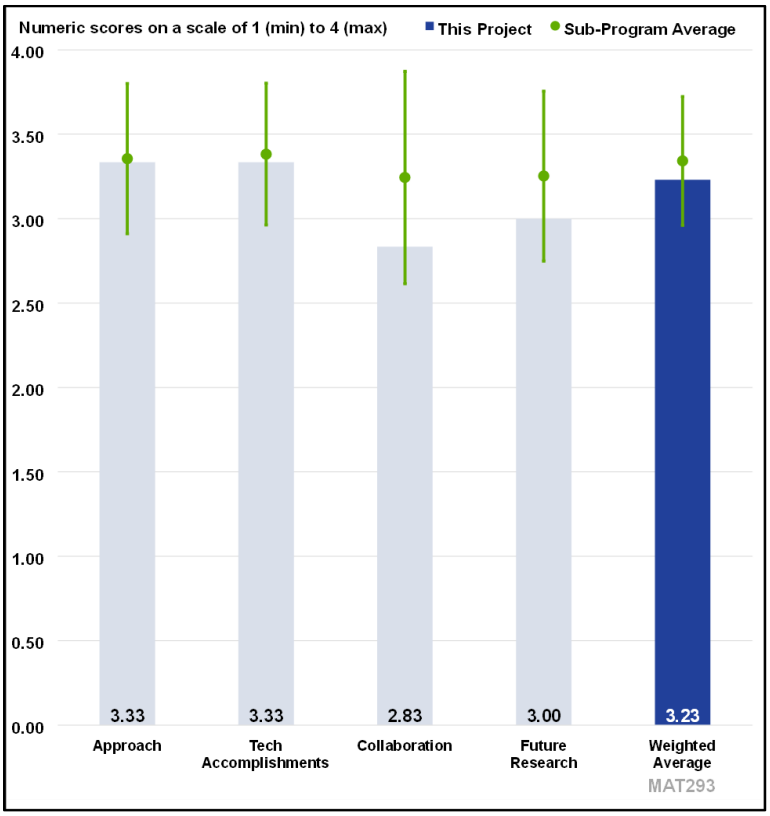

Figure 5-25 - Presentation Number: MAT293 Presentation Title: CCP 2.0, Task 1.5 – High-performance Polymer-Fiber-Reinforced Polymer Composites (PFRPs) Principal Investigator: Yao Qiao, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT293_Qiao_2025_o.pdf

Presentation Number:
MAT294
Presentation Title:
Bulk-Scale Ultra-Conductors via Low-C Manufacturing Pathways
Principal Investigator:
Keerti Kappagantula, Pacific Northwest National Laboratory

Presenter
Keerti Kappagantula, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

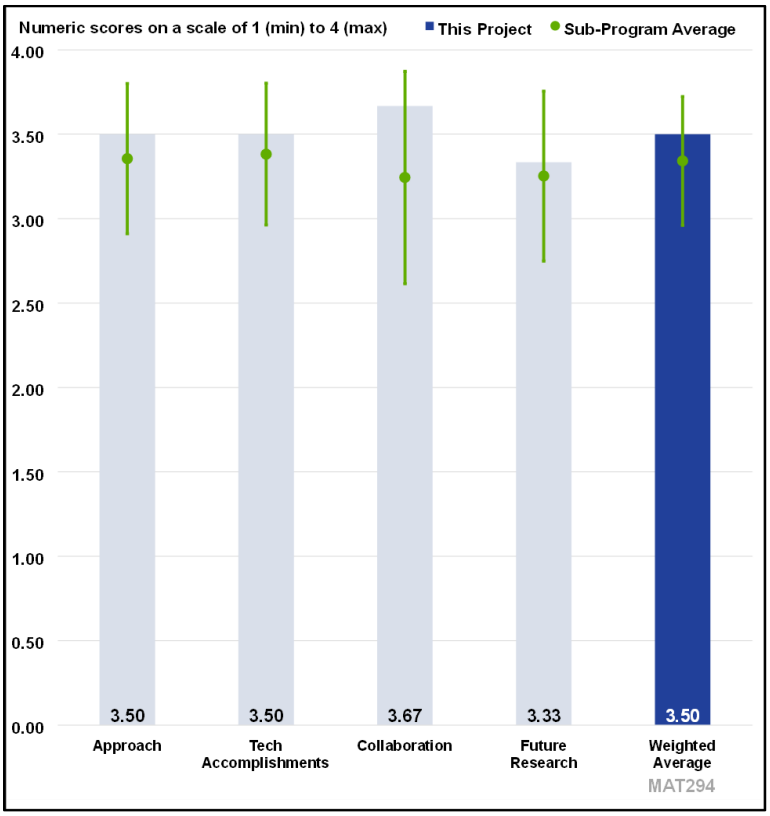

Figure 5-26 - Presentation Number: MAT294 Presentation Title: Bulk-Scale Ultra-Conductors via Low-C Manufacturing Pathways Principal Investigator: Keerti Kappagantula, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT294_Kappagantula_2025_o.pdf

Presentation Number:
MAT295
Presentation Title:
High Resistivity Fe_6Si-X Rolled Steels for Soft Magnetic Cores
Principal Investigator:
Govindarajan Muralidharan, Oak Ridge National Laboratory

Presenter
Govindarajan Muralidharan, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

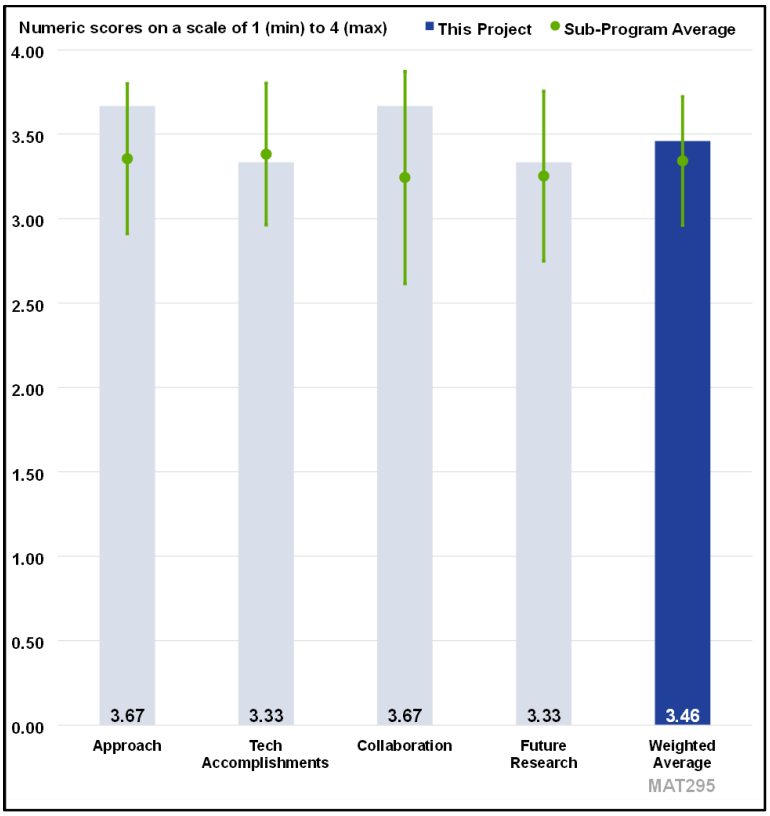

Figure 5-27 - Presentation Number: MAT295 Presentation Title: High Resistivity Fe_6Si-X Rolled Steels for Soft Magnetic Cores Principal Investigator: Govindarajan Muralidharan, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT295_Muralidharan_2025_o.pdf

Presentation Number:
MAT296
Presentation Title:
Near Net Shape High Strength SMCs for Axial Flux Motors
Principal Investigator:
Vineet V. Joshi, Pacific Northwest National Laboratory

Presenter
Vineet V. Joshi, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

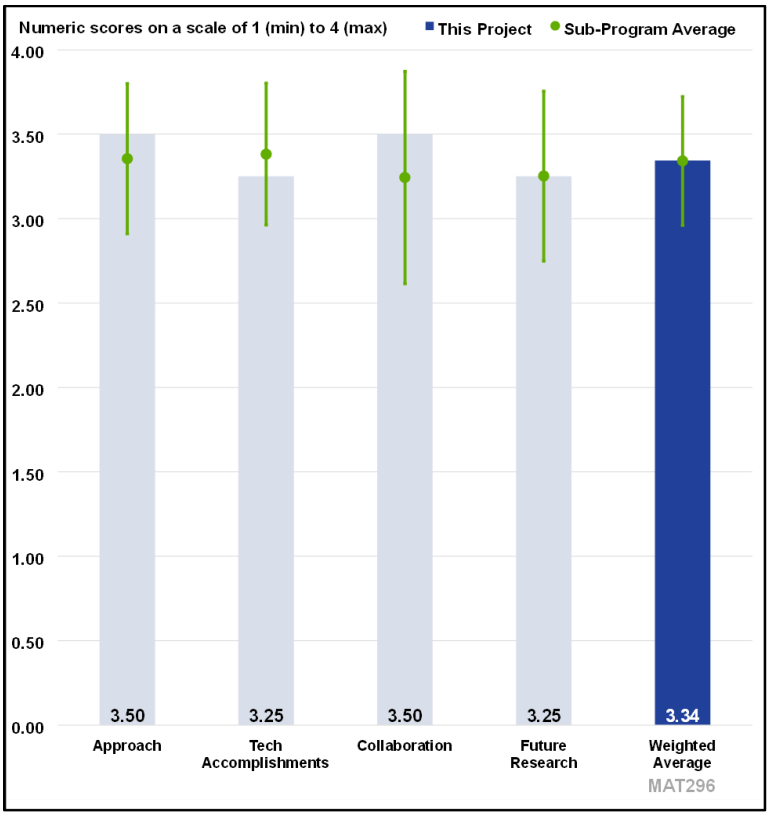

Figure 5-28 - Presentation Number: MAT296 Presentation Title: Near Net Shape High Strength SMCs for Axial Flux Motors Principal Investigator: Vineet V. Joshi, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT296_Joshi_2025_o.pdf

Presentation Number:
MAT297
Presentation Title:
Opportunities to Support Integration of Non-Electric Propulsion Systems
Principal Investigator:
Rishi Pillai, Oak Ridge National Laboratory

Presenter
Rishi Pillai, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

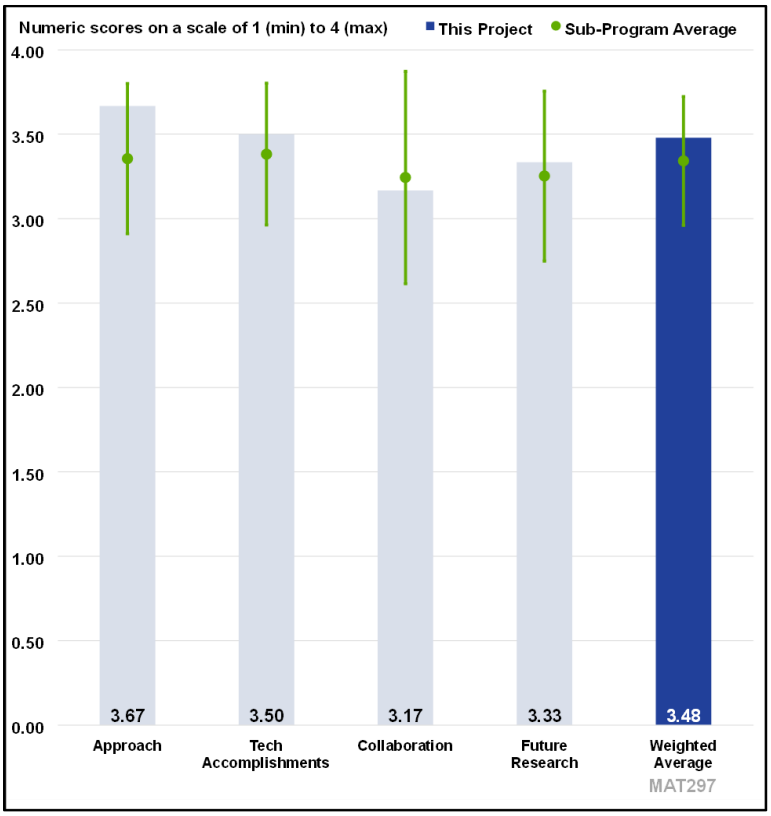

Figure 5-29 - Presentation Number: MAT297 Presentation Title: Opportunities to Support Integration of Non-Electric Propulsion Systems Principal Investigator: Rishi Pillai, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT297_Pillai_2025_o.pdf

Presentation Number:
MAT298
Presentation Title:
LMCP 2.0 Task 1A – Flaw Mitigation and Repair in Ultra Large Castings Composed of High Secondary Alloy Content
Principal Investigator:
Saumyadeep Jana, Pacific Northwest National Laboratory

Presenter
Saumyadeep Jana/Piyush Upadhayay, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 75% of reviewers felt that the resources were sufficient, 25% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

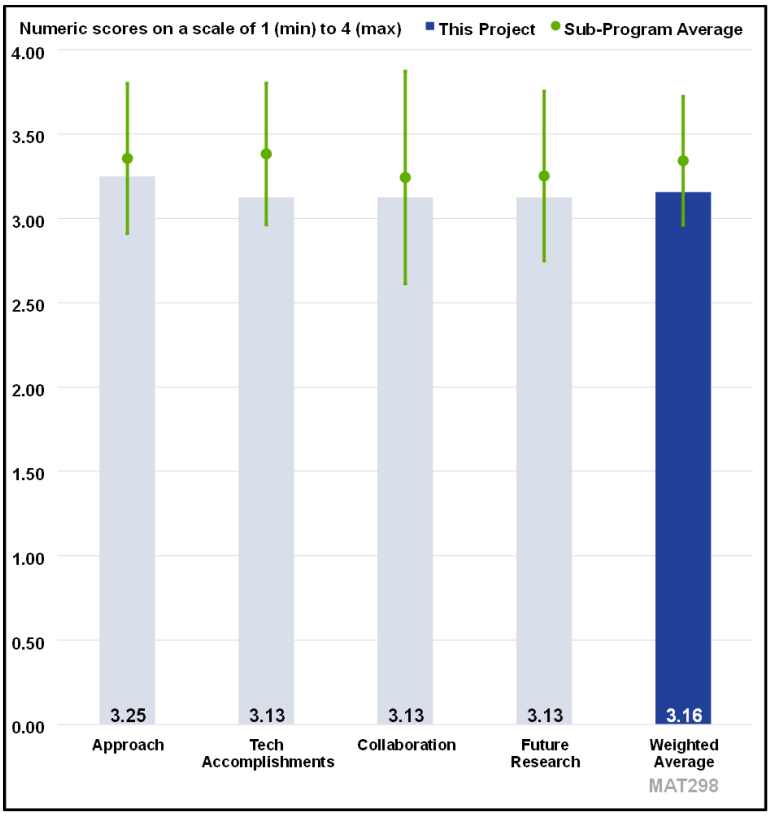

Figure 5-30 - Presentation Number: MAT298 Presentation Title: LMCP 2.0 Task 1A – Flaw Mitigation and Repair in Ultra Large Castings Composed of High Secondary Alloy Content Principal Investigator: Saumyadeep Jana, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT298_Jana_Upadhayay_2025_o.pdf

Presentation Number:
MAT299
Presentation Title:
LMCP 2.0 Task 1B – Post Processing of Castings for Energy Absorption in Crash
Principal Investigator:
Piyush Upadhayay, Pacific Northwest National Laboratory

Presenter
Piyush Upadhayay, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of one reviewer evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

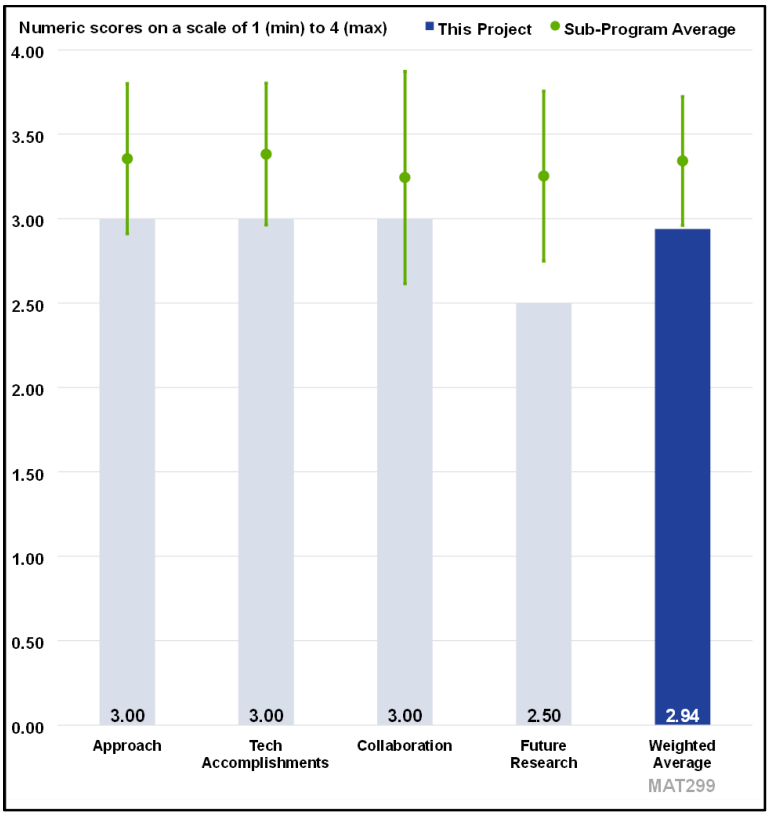

Figure 5-31 - Presentation Number: MAT299 Presentation Title: LMCP 2.0 Task 1B – Post Processing of Castings for Energy Absorption in Crash Principal Investigator: Piyush Upadhayay, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT299_Upadhayay_2025_o.pdf

Presentation Number:
MAT300
Presentation Title:
LMCP 2.0 Task 1C – Enhancing Mechanical Performance of HPDC Al Castings by In-Situ Ultrasonic Processing
Principal Investigator:
Aashish Rohatgi, Pacific Northwest National Laboratory

Presenter
Aashish Rohatgi, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 75% of reviewers felt that the resources were sufficient, 25% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

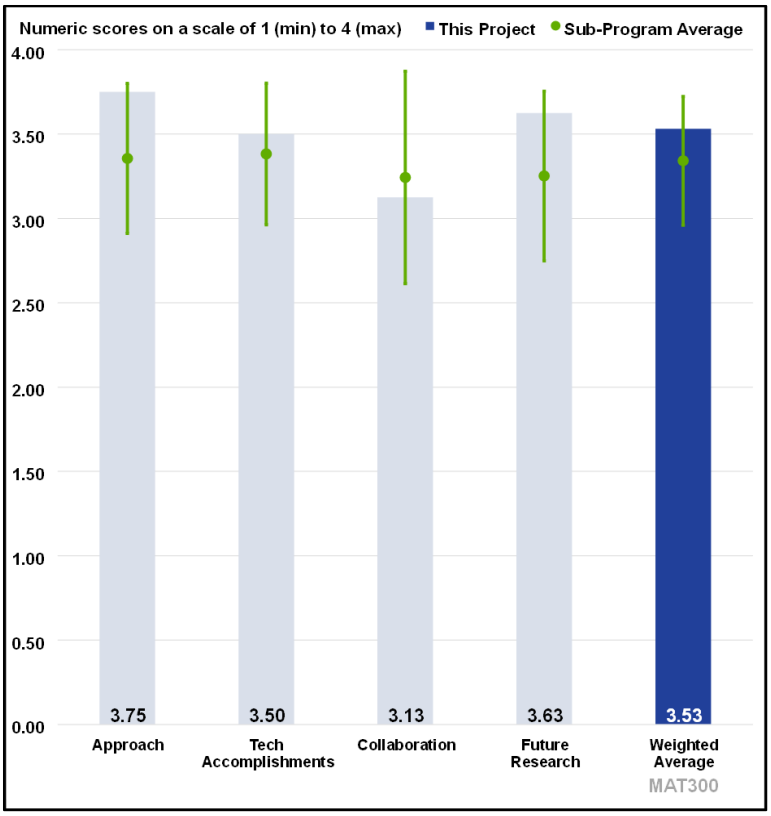

Figure 5-32 - Presentation Number: MAT300 Presentation Title: LMCP 2.0 Task 1C – Enhancing Mechanical Performance of HPDC Al Castings by In-Situ Ultrasonic Processing Principal Investigator: Aashish Rohatgi, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT300_Rohatgi_2025_o.pdf

Presentation Number:
MAT301
Presentation Title:
LMCP 2.0 Task 1D-24 – Mechanical Behavior of HPDC Al Alloys with High Secondary Content
Principal Investigator:
Sumit Bahl, Oak Ridge National Laboratory

Presenter
Sumit Bahl, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

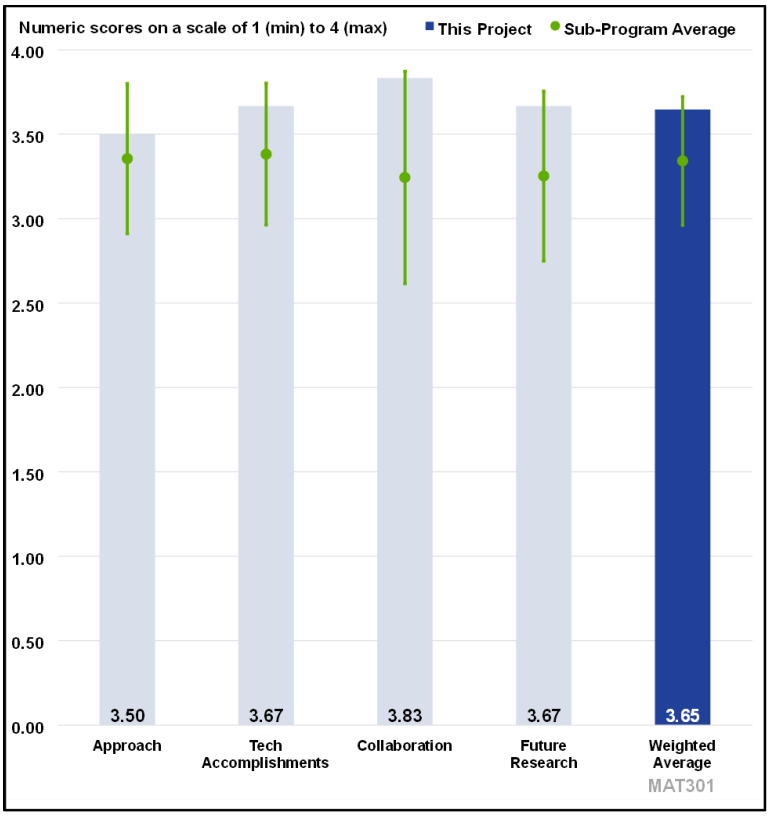

Figure 5-33 - Presentation Number: MAT301 Presentation Title: LMCP 2.0 Task 1D-24 – Mechanical Behavior of HPDC Al Alloys with High Secondary Content Principal Investigator: Sumit Bahl, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT301_Bahl_2025_o.pdf

Presentation Number:
MAT302
Presentation Title:
LMCP 2.0 Task 2A-24 – Design of Sustainable Lightweight Cast Alloys for HPDC
Principal Investigator:
Amit Shyam, Oak Ridge National Laboratory

Presenter
Amit Shyam, Oak Ridge National Laboratory

Reviewer Sample Size
A total of one reviewer evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

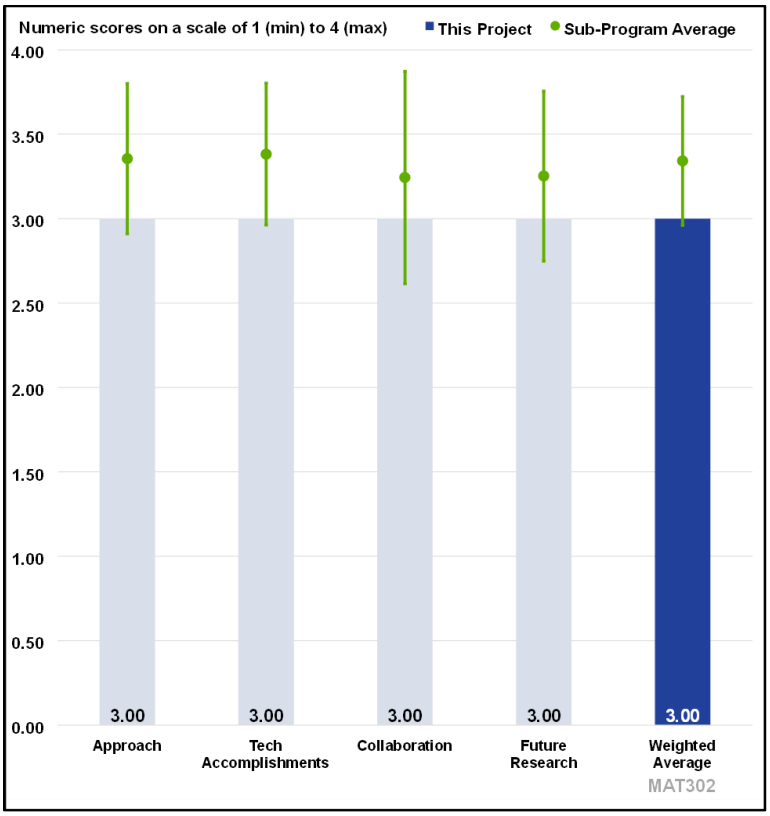

Figure 5-34 - Presentation Number: MAT302 Presentation Title: LMCP 2.0 Task 2A-24 – Design of Sustainable Lightweight Cast Alloys for HPDC Principal Investigator: Amit Shyam, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT302_Shyam_2025_o.pdf

Presentation Number:
MAT303
Presentation Title:
LMCP 2.0 Task 2B-24 – Optimization of T5 Heat Treatments in Diecast Alloys
Principal Investigator:
Dongwon Shin, Oak Ridge National Laboratory

Presenter
Dongwon Shin, Oak Ridge National Laboratory

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

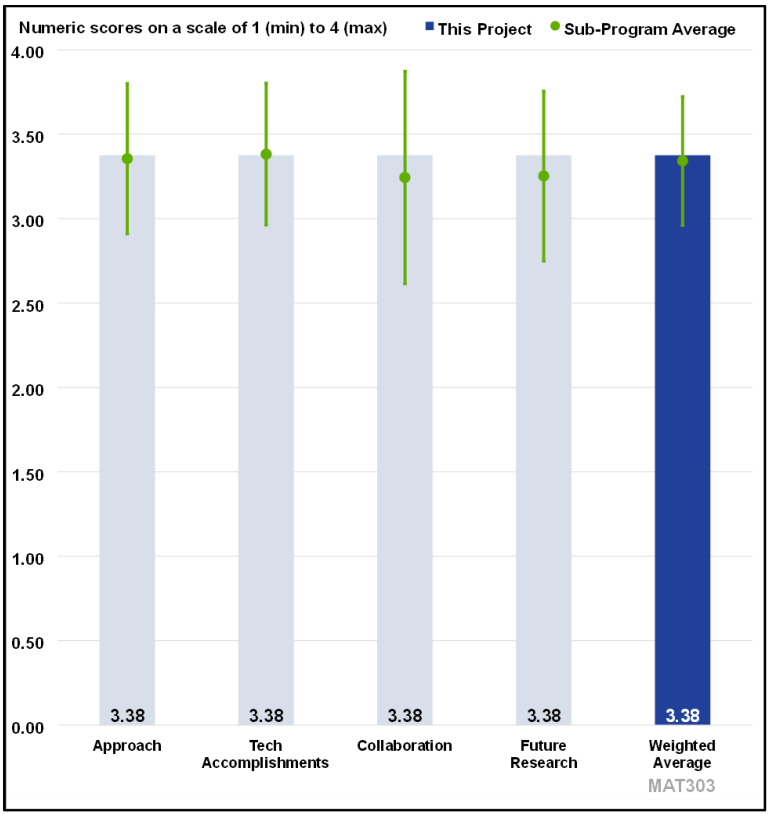

Figure 5-35 - Presentation Number: MAT303 Presentation Title: LMCP 2.0 Task 2B-24 – Optimization of T5 Heat Treatments in Diecast Alloys Principal Investigator: Dongwon Shin, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT303_Shin_2025_o.pdf

Presentation Number:
MAT304
Presentation Title:
LMCP 2.0 Task 2C-24 – Fundamentals of Solidification for LW Alloys with High Secondary Content
Principal Investigator:
Ying Yang, Oak Ridge National Laboratory

Presenter
Ying Yang, Oak Ridge National Laboratory

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

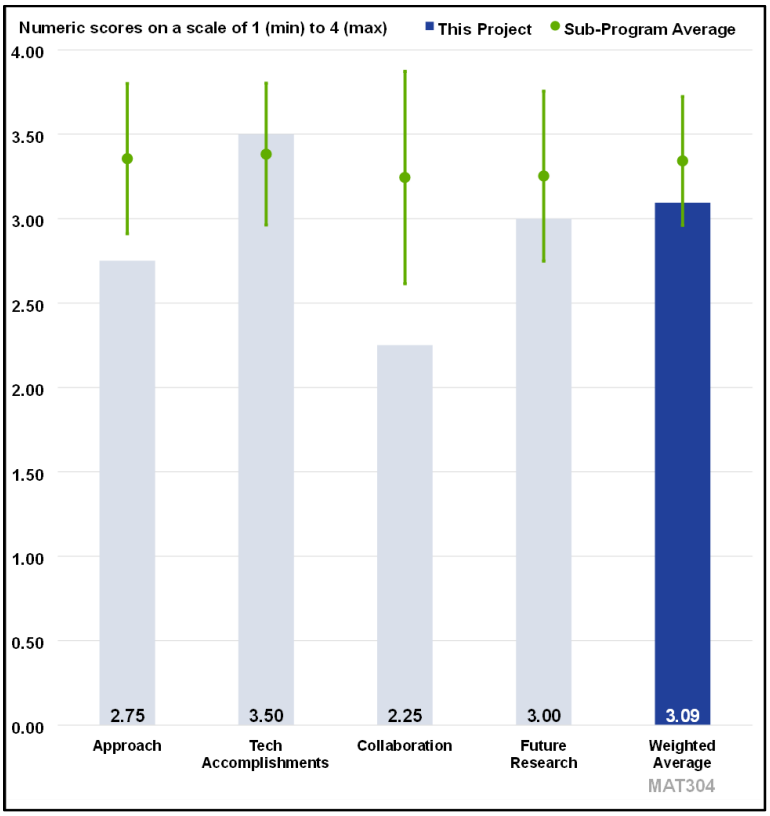

Figure 5-36 - Presentation Number: MAT304 Presentation Title: LMCP 2.0 Task 2C-24 – Fundamentals of Solidification for LW Alloys with High Secondary Content Principal Investigator: Ying Yang, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT304_Yang_2025_o.pdf

Presentation Number:
MAT305
Presentation Title:
LMCP 2.0 Task 2E-24 – Upcycling of Secondary LW Alloys Using Additive Manufacturing
Principal Investigator:
Jovid Rakhmonov, Oak Ridge National Laboratory

Presenter
Jovid Rakhmonov, Oak Ridge National Laboratory

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

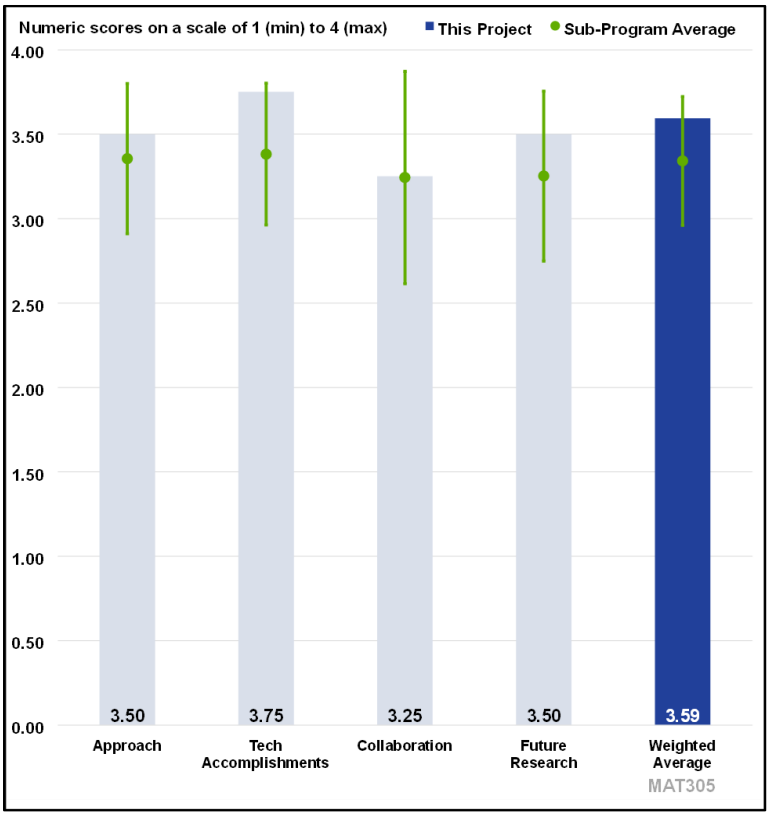

Figure 5-37 - Presentation Number: MAT305 Presentation Title: LMCP 2.0 Task 2E-24 – Upcycling of Secondary LW Alloys Using Additive Manufacturing Principal Investigator: Jovid Rakhmonov, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT305_Rakhmonov_2025_o.pdf

Presentation Number:
MAT306
Presentation Title:
LMCP 2.0 Task 3A-A – Thermo-Mechanical Processing Techniques to Enable a Versatile and Recyclable 6xxx Unialloy and LMCP 2.0 Task 3A-B – Formability and Edge Stretchability of Recyclable 6xxx Al Alloys
Principal Investigator:
Mert Efe, Pacific Northwest National Laboratory

Presenter
Mert Efe, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 75% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 25% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

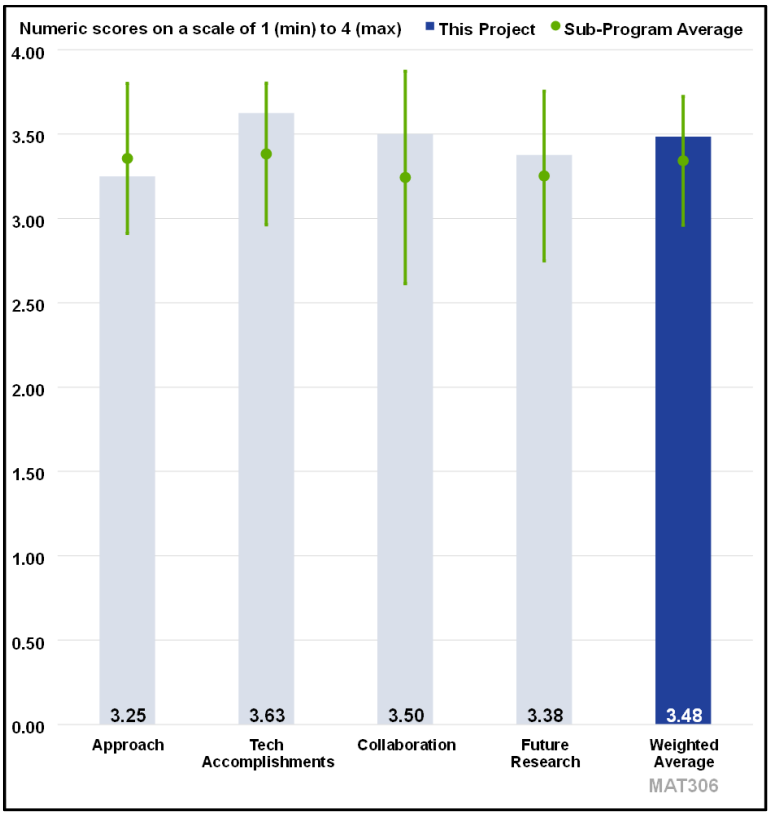

Figure 5-38 - Presentation Number: MAT306 Presentation Title: LMCP 2.0 Task 3A-A – Thermo-Mechanical Processing Techniques to Enable a Versatile and Recyclable 6xxx Unialloy and LMCP 2.0 Task 3A-B – Formability and Edge Stretchability of Recyclable 6xxx Al Alloys Principal Investigator: Mert Efe, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT306_Efe_2025_o.pdf

Presentation Number:
MAT308
Presentation Title:
LMCP 2.0 Task 3B – Solid Phase Processing of Mg Alloys for Improved Performance
Principal Investigator:
Mageshwari Komarasamy, Pacific Northwest National Laboratory

Presenter
Mageshwari Komarasamy, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

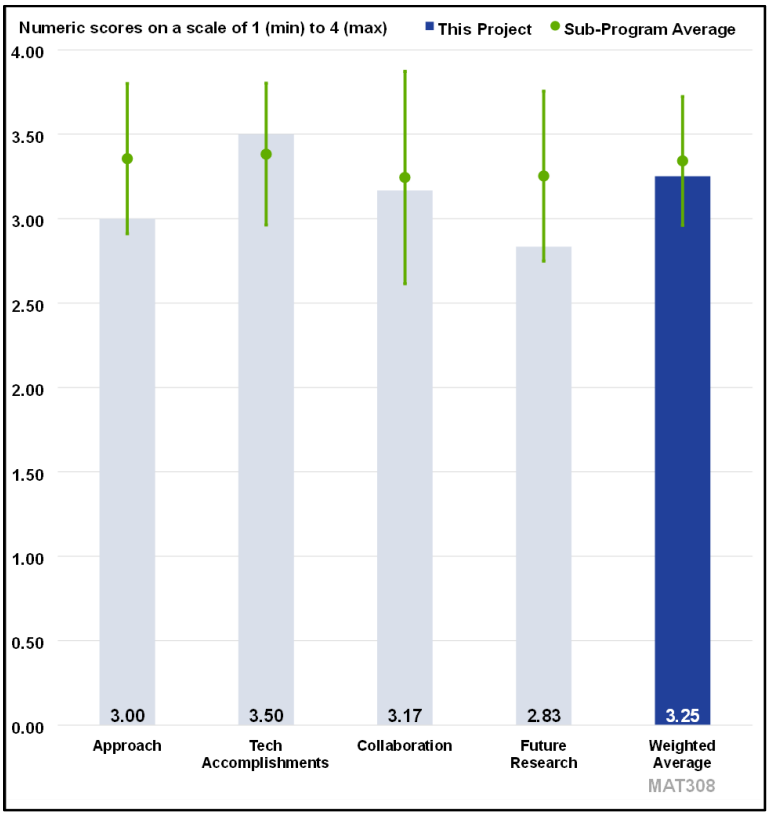

Figure 5-39 - Presentation Number: MAT308 Presentation Title: LMCP 2.0 Task 3B – Solid Phase Processing of Mg Alloys for Improved Performance Principal Investigator: Mageshwari Komarasamy, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT308_Komarasamy_2025_o.pdf

Presentation Number:
MAT309
Presentation Title:
LMCP 2.0 Task 4A-24 – Scalable Surface Alloyed Coatings on Magnesium High Pressure Die Casting Parts
Principal Investigator:
Vineet V. Joshi, Pacific Northwest National Laboratory

Presenter
Vineet V. Joshi, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

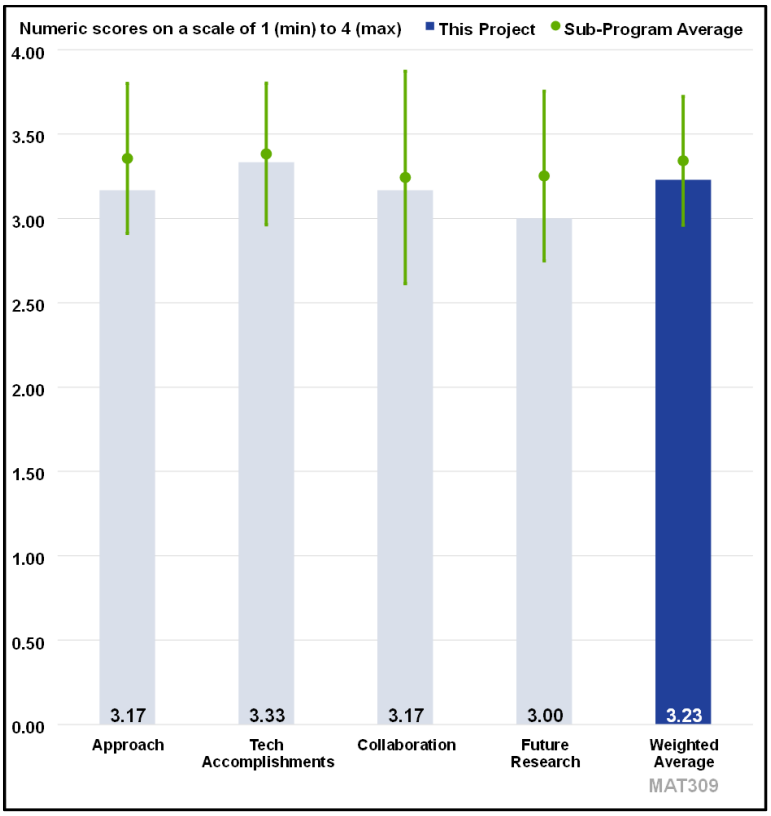

Figure 5-40 - Presentation Number: MAT309 Presentation Title: LMCP 2.0 Task 4A-24 – Scalable Surface Alloyed Coatings on Magnesium High Pressure Die Casting Parts Principal Investigator: Vineet V. Joshi, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT309_Joshi_2025_o.pdf

Presentation Number:
MAT310
Presentation Title:
Zero-Emission Natural Fiber Composites (ZENC) for Fire-Detecting Fireproof EV Battery Enclosure
Principal Investigator:
Maria Feng, Columbia University

Presenter
Maria Feng, Columbia University

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

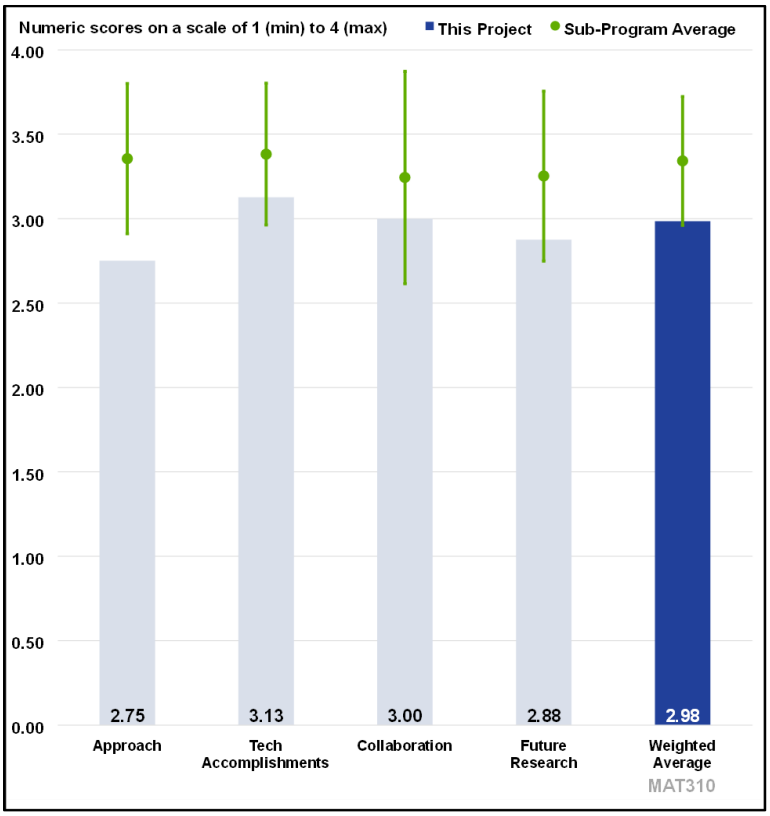

Figure 5-41 - Presentation Number: MAT310 Presentation Title: Zero-Emission Natural Fiber Composites (ZENC) for Fire-Detecting Fireproof EV Battery Enclosure Principal Investigator: Maria Feng, Columbia University

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT310_Feng_2025_o.pdf

Presentation Number:
MAT311
Presentation Title:
Transforming Carbon Fiber-Reinforced Polymer Wastes into Recyclable Structural Automotive Components
Principal Investigator:
Jinwen Zhang, Washington State University

Presenter
Jinwen Zhang, Washington State University

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

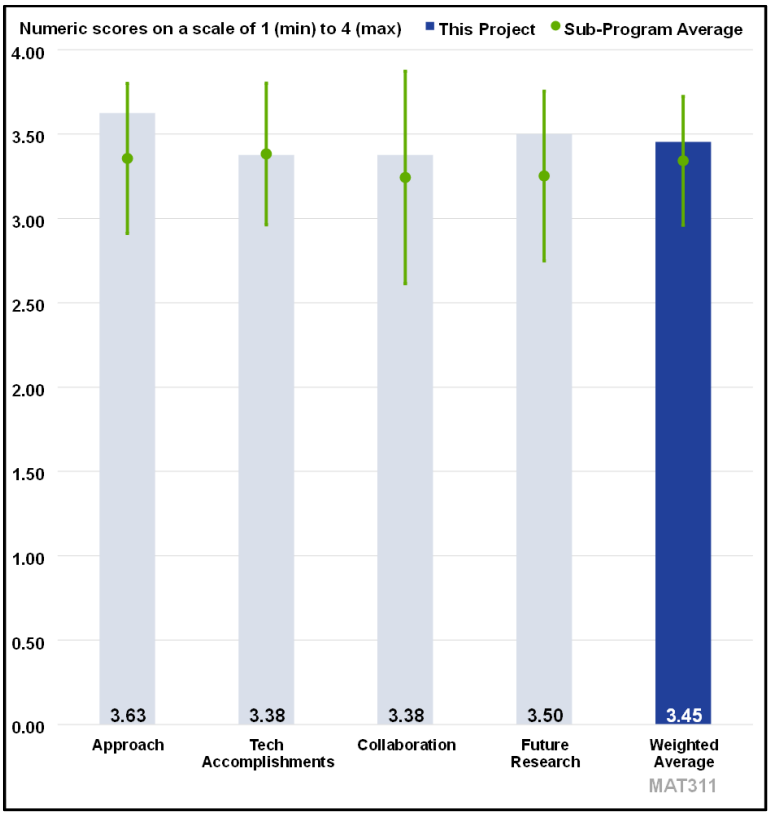

Figure 5-42 - Presentation Number: MAT311 Presentation Title: Transforming Carbon Fiber-Reinforced Polymer Wastes into Recyclable Structural Automotive Components Principal Investigator: Jinwen Zhang, Washington State University

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT311_Zhang_2025_o.pdf

Presentation Number:
MAT312
Presentation Title:
Cost-effective Circular Manufacturing of Lightweight Vehicle Shells and Battery casing by Recyclable-by-Design Polymer Composites
Principal Investigator:
Chen Wang, University of Utah

Presenter
Chen Wang, University of Utah

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

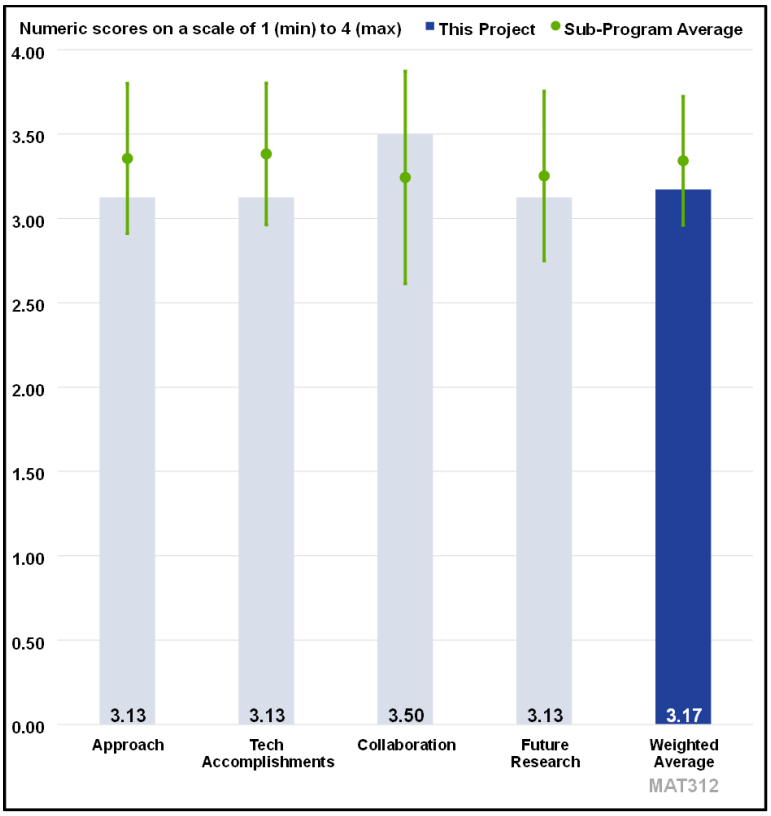

Figure 5-43 - Presentation Number: MAT312 Presentation Title: Cost-effective Circular Manufacturing of Lightweight Vehicle Shells and Battery casing by Recyclable-by-Design Polymer Composites Principal Investigator: Chen Wang, University of Utah

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT312_Wang_2025_o.pdf

Presentation Number:
MAT313
Presentation Title:
Sustainable Circular Manufacturing of Automotive Composites
Principal Investigator:
Jay Keasling, University of California at Berkeley

Presenter
Jay Keasling, University of California at Berkeley

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

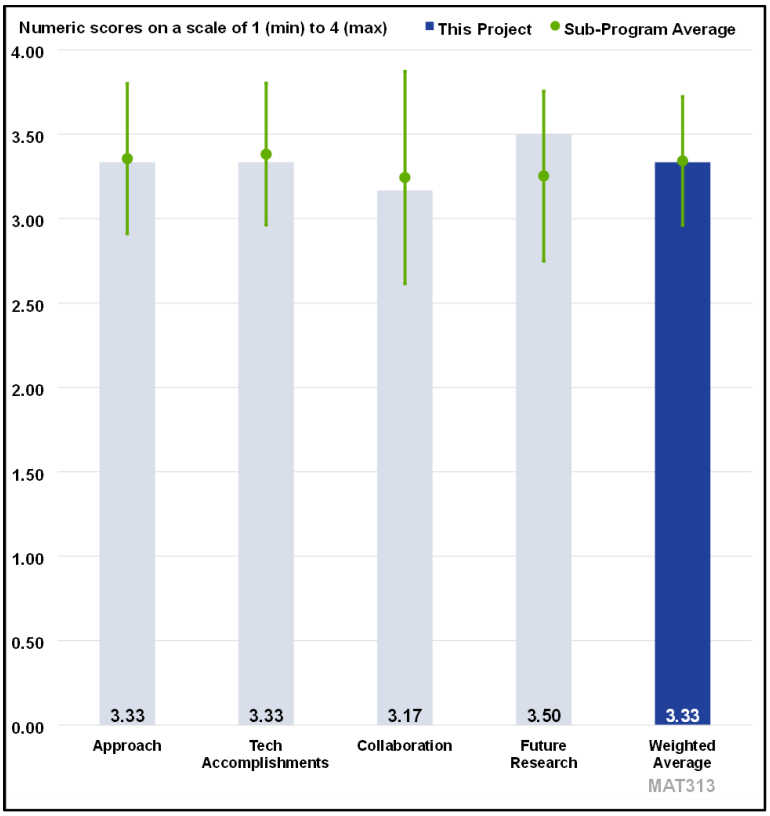

Figure 5-44 - Presentation Number: MAT313 Presentation Title: Sustainable Circular Manufacturing of Automotive Composites Principal Investigator: Jay Keasling, University of California at Berkeley

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT313_Keasling_2025_o.pdf

Presentation Number:
MAT314
Presentation Title:
CCP 2.0, Task 3.1 – Waste Plastics to High-Value Polymers
Principal Investigator:
Daniel Merkel, Pacific Northwest National Laboratory

Presenter
Daniel Merkel, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

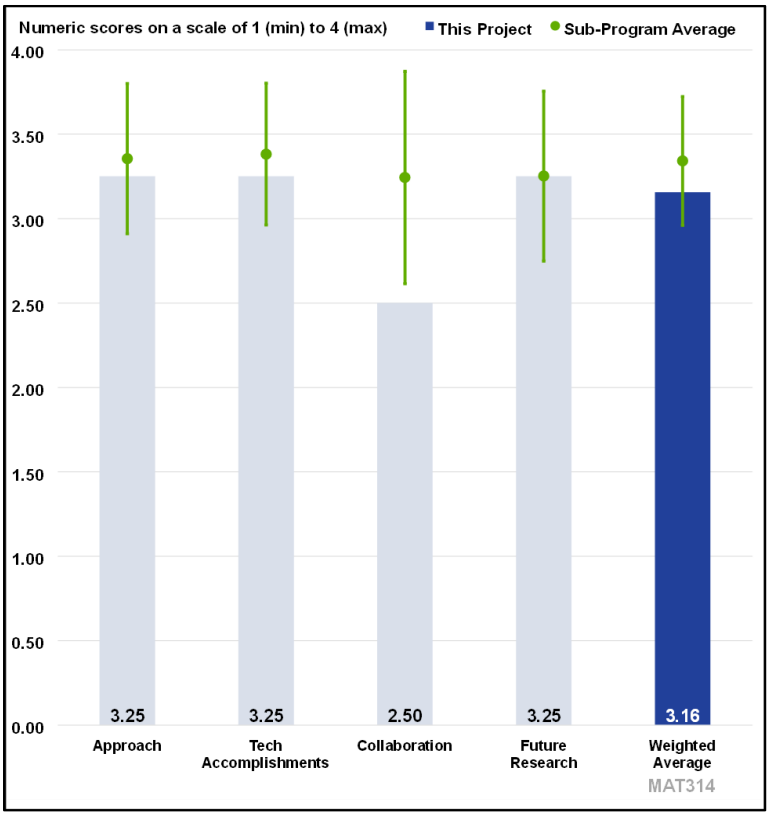

Figure 5-45 - Presentation Number: MAT314 Presentation Title: CCP 2.0, Task 3.1 – Waste Plastics to High-Value Polymers Principal Investigator: Daniel Merkel, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT314_Merkel_2025_o.pdf

Presentation Number:
MAT315
Presentation Title:
CCP 2.0, Task 3.2 – Circular Economy for Unwanted Shredded Automotive Waste (CE-SAW)
Principal Investigator:
Caitlyn Clarkson, Oak Ridge National Laboratory

Presenter
Caitlyn Clarkson, Oak Ridge National Laboratory

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

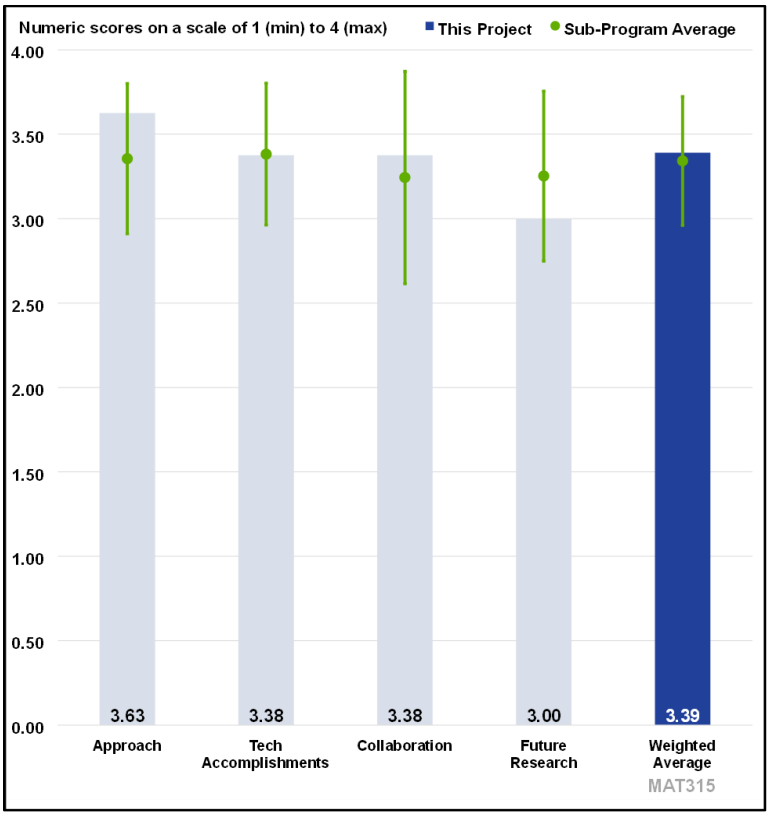

Figure 5-46 - Presentation Number: MAT315 Presentation Title: CCP 2.0, Task 3.2 – Circular Economy for Unwanted Shredded Automotive Waste (CE-SAW) Principal Investigator: Caitlyn Clarkson, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT315_Clarkson_2025_o.pdf

Presentation Number:
MAT316
Presentation Title:
CCP 2.0, Task 3.3 – Materials and Manufacturing Innovation for Sustainable Automotive Composites – Bioderivable and Recyclable Composites
Principal Investigator:
Nicholas Rorrer, National Renewable Energy Laboratory

Presenter
Nicholas Rorrer, National Renewable Energy Laboratory

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

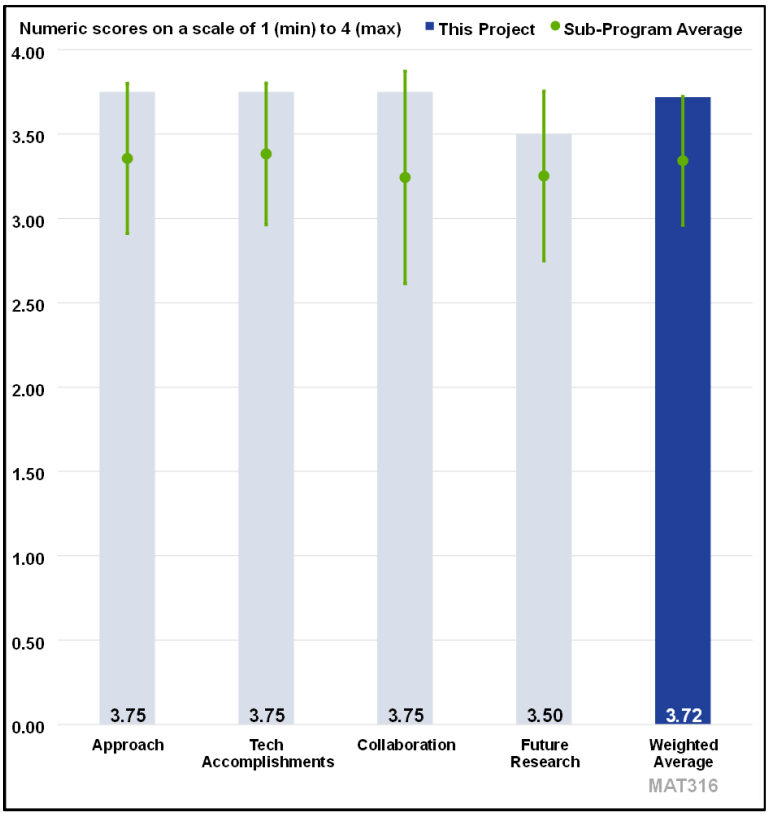

Figure 5-47 - Presentation Number: MAT316 Presentation Title: CCP 2.0, Task 3.3 – Materials and Manufacturing Innovation for Sustainable Automotive Composites – Bioderivable and Recyclable Composites Principal Investigator: Nicholas Rorrer, National Renewable Energy Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT316_Rorrer_2025_o.pdf

Presentation Number:
MAT317
Presentation Title:
CCP 2.0, Task 3.4 – High Throughput Recycling of Long CF from Cured Thermoset Composites
Principal Investigator:
Wenbin Kuang, Pacific Northwest National Laboratory

Presenter
Wenbin Kuang, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 75% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 25% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

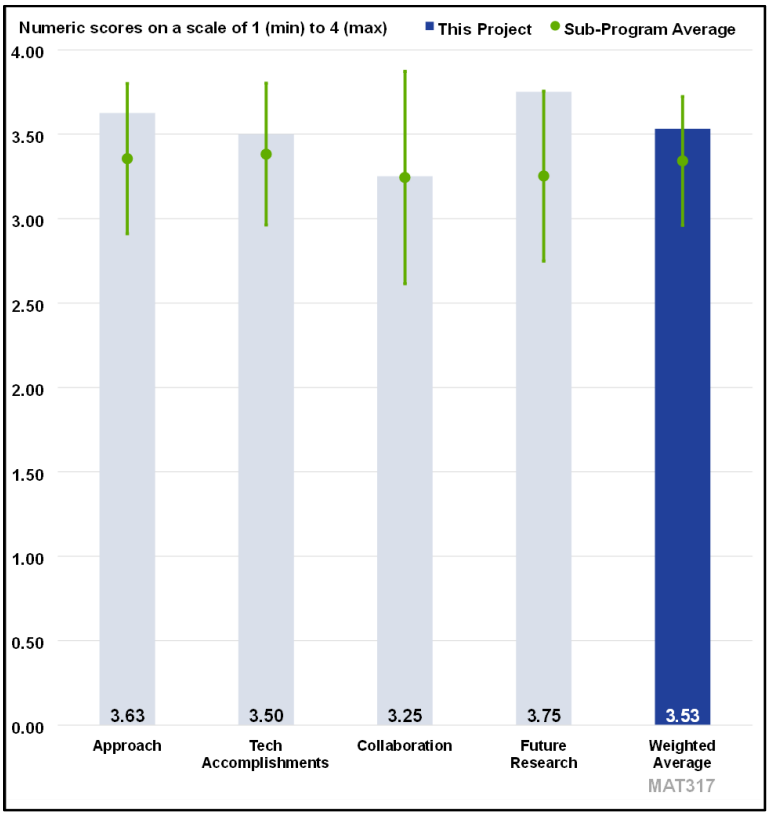

Figure 5-48 - Presentation Number: MAT317 Presentation Title: CCP 2.0, Task 3.4 – High Throughput Recycling of Long CF from Cured Thermoset Composites Principal Investigator: Wenbin Kuang, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT317_Kuang_2025_o.pdf

Presentation Number:
MAT318
Presentation Title:
CCP 2.0, Task 4.3 – Recyclable Cellulose Fiber Reinforced Vitrimer Composites
Principal Investigator:
Amit Naskar, Oak Ridge National Laboratory

Presenter
Amit Naskar, Oak Ridge National Laboratory

Reviewer Sample Size
A total of one reviewer evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

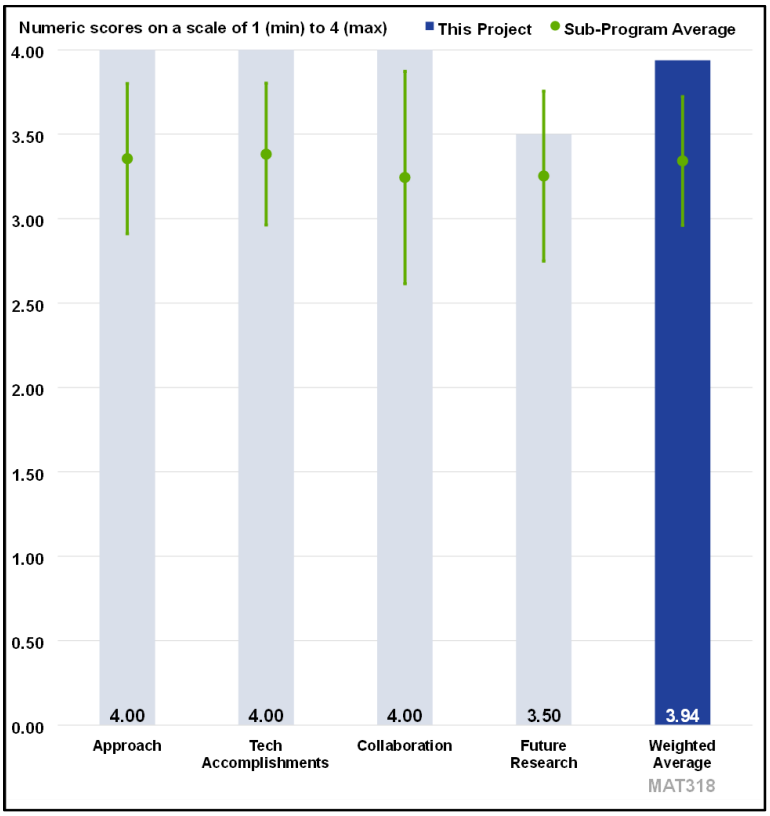

Figure 5-49 - Presentation Number: MAT318 Presentation Title: CCP 2.0, Task 4.3 – Recyclable Cellulose Fiber Reinforced Vitrimer Composites Principal Investigator: Amit Naskar, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT318_Naskar_2025_o.pdf

Presentation Number:
MAT319
Presentation Title:
CCP 2.0, Task 4.1 – Precise High-Speed Manufacturing of Thermoplastic Composites Using Additive – Compression Molding (AM-CM)
Principal Investigator:
Vipin Kumar, Oak Ridge National Laboratory

Presenter
Vipin Kumar, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

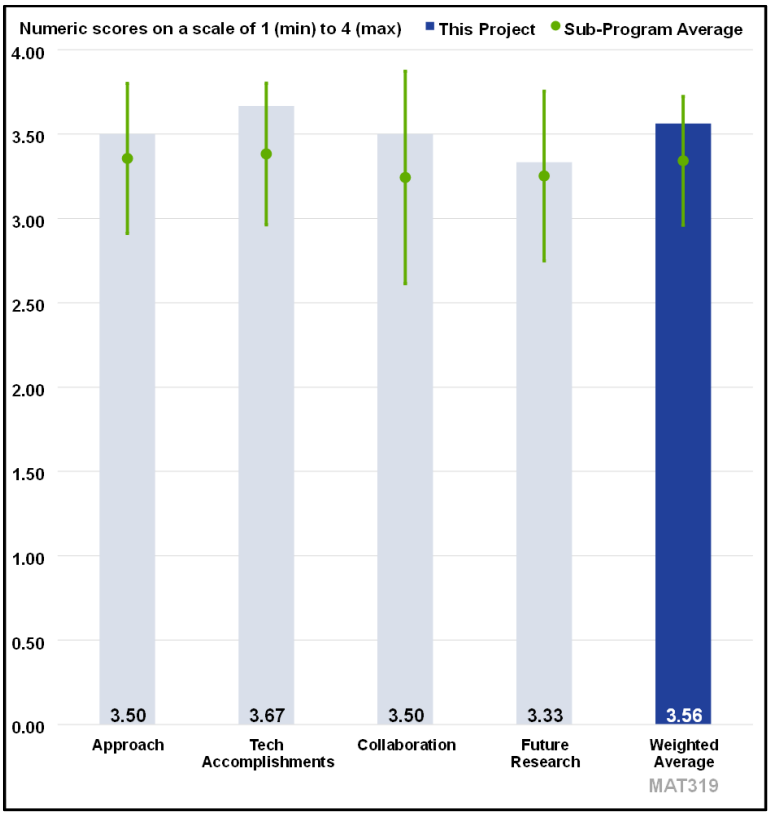

Figure 5-50 - Presentation Number: MAT319 Presentation Title: CCP 2.0, Task 4.1 – Precise High-Speed Manufacturing of Thermoplastic Composites Using Additive – Compression Molding (AM-CM) Principal Investigator: Vipin Kumar, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT319_Kumar_2025_o.pdf

Presentation Number:
MAT320
Presentation Title:
CCP 2.0, Task 4.2 – Designing and Manufacturing Adaptable Large-scale Hierarchical Materials with Tailorable Toughness
Principal Investigator:
Seokpum Kim, Oak Ridge National Laboratory

Presenter
Seokpum Kim, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

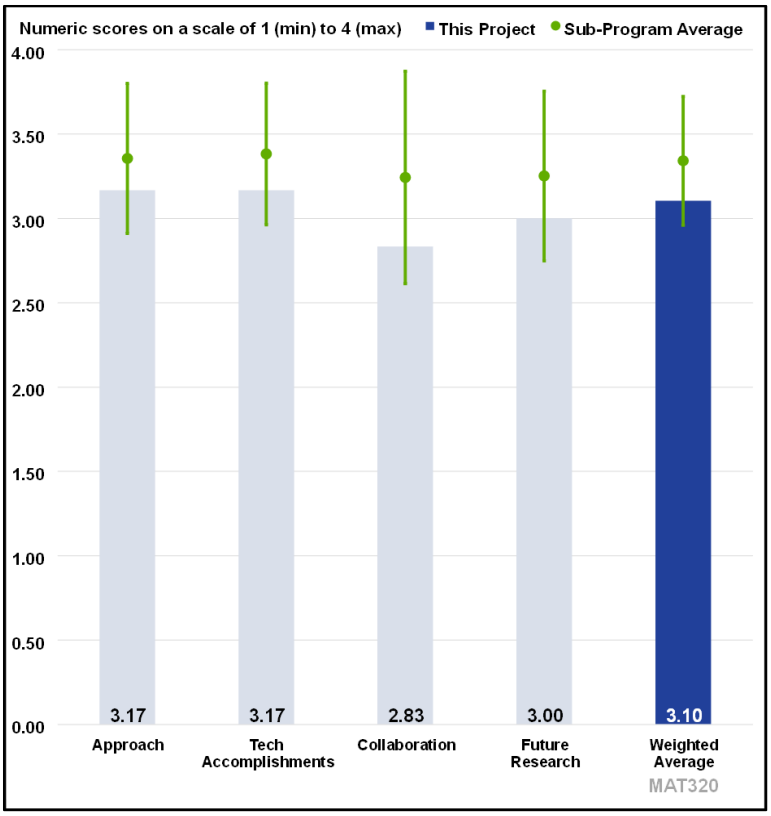

Figure 5-51 - Presentation Number: MAT320 Presentation Title: CCP 2.0, Task 4.2 – Designing and Manufacturing Adaptable Large-scale Hierarchical Materials with Tailorable Toughness Principal Investigator: Seokpum Kim, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT320_Naskar_2025_o.pdf

Presentation Number:
MAT321
Presentation Title:
Bio-Inspired High-Performance 3D Printed Carbon Composite with Sensing: Surface Modification and AI/ML Approaches
Principal Investigator:
Rigoberto Advincula, Oak Ridge National Laboratory

Presenter
Rigoberto Advincula, Oak Ridge National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 67% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 33% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

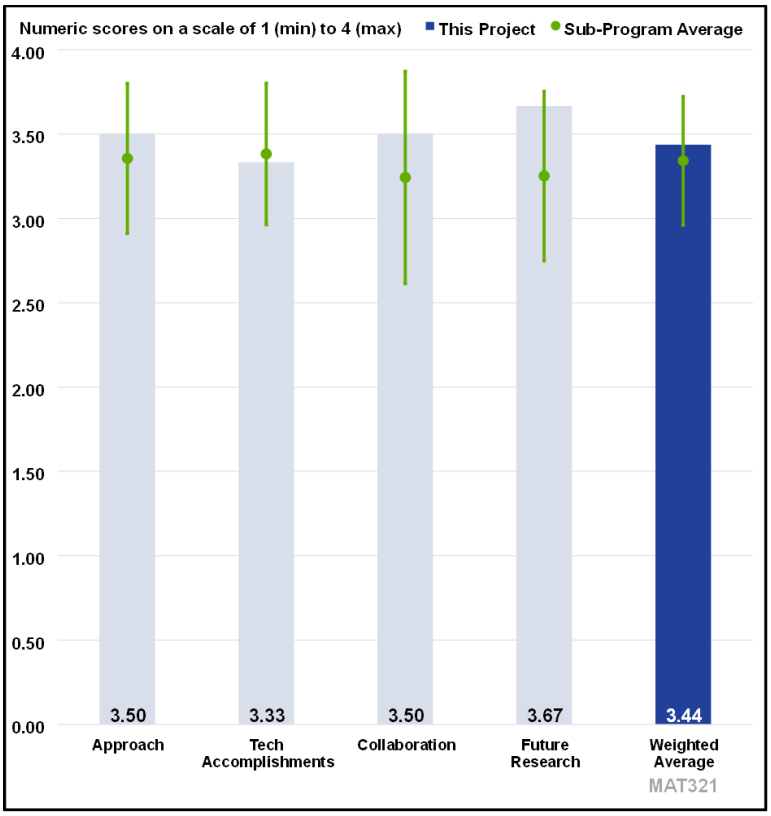

Figure 5-52 - Presentation Number: MAT321 Presentation Title: Bio-Inspired High-Performance 3D Printed Carbon Composite with Sensing: Surface Modification and AI/ML Approaches Principal Investigator: Rigoberto Advincula, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT321_Advincula_2025_o.pdf

Presentation Number:
MAT322
Presentation Title:
Printable Creep-Resistant Lightweight Conductors
Principal Investigator:
Alex Plotkowski, Oak Ridge National Laboratory

Presenter
Jovid Rakhmonov, Oak Ridge National Laboratory

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

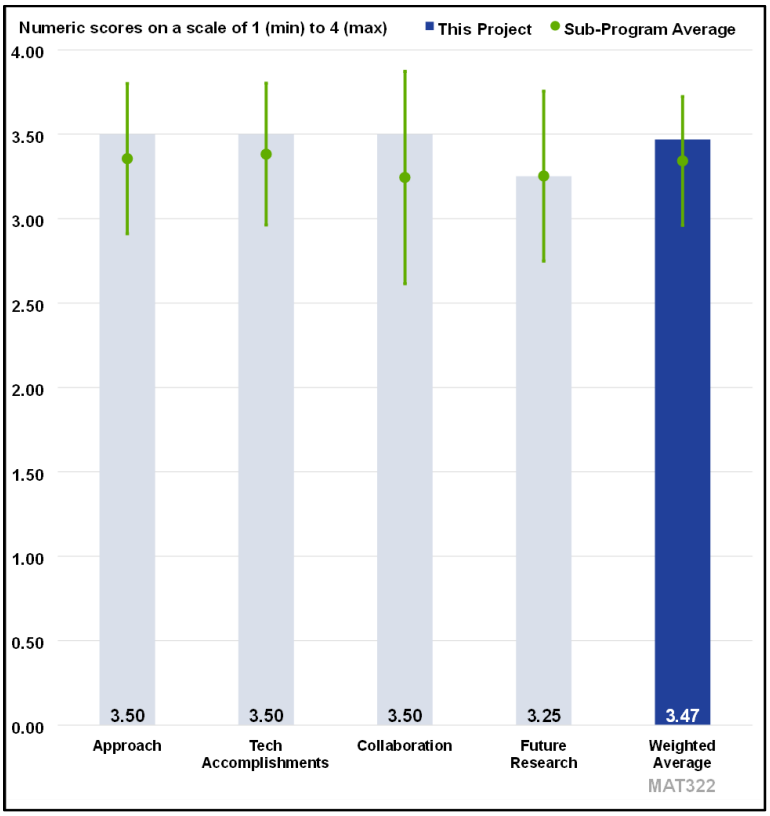

Figure 5-53 - Presentation Number: MAT322 Presentation Title: Printable Creep-Resistant Lightweight Conductors Principal Investigator: Alex Plotkowski, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT322_Rakhmonov_2025_o.pdf

Presentation Number:
MAT323
Presentation Title:
CCP 2.0, Task 1.6 – Natural Fiber Composites with Low Carbon Resin Matrix
Principal Investigator:
Wenbin Kuang, Pacific Northwest National Laboratory

Presenter
Wenbin Kuang, Pacific Northwest National Laboratory

Reviewer Sample Size
A total of three reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 67% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 33% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

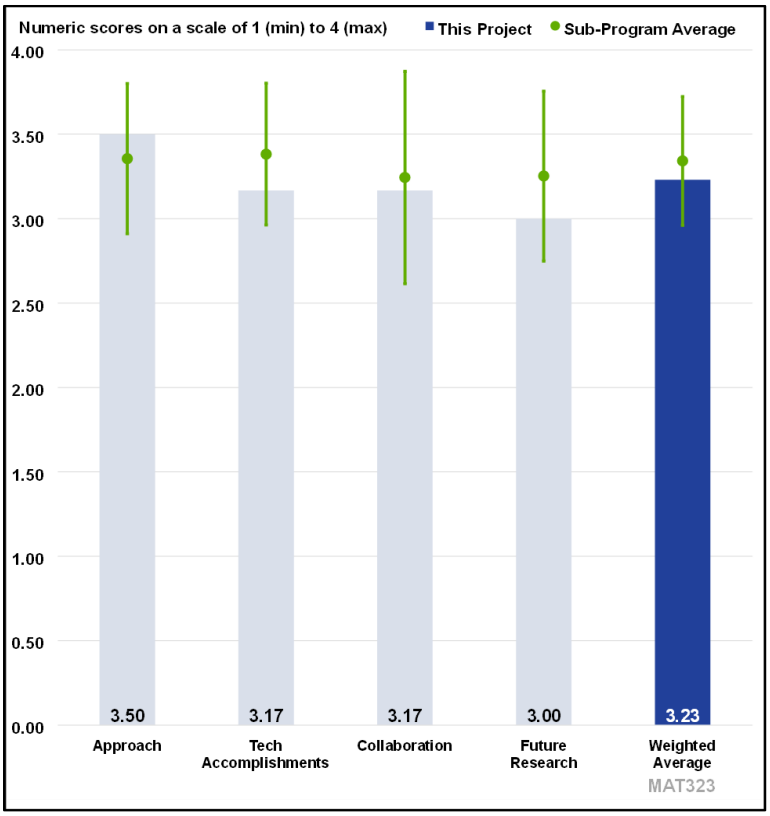

Figure 5-54 - Presentation Number: MAT323 Presentation Title: CCP 2.0, Task 1.6 – Natural Fiber Composites with Low Carbon Resin Matrix Principal Investigator: Wenbin Kuang, Pacific Northwest National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT323_Kuang_2025_p.pdf

Presentation Number:
MAT324
Presentation Title:
CCP 2.0, Task 2.5 – Electrospun Nanofiber Networks for Multifunctional Composites
Principal Investigator:
Christopher Bowland, Oak Ridge National Laboratory

Presenter
Sumit Gupta, Oak Ridge National Laboratory

Reviewer Sample Size
A total of one reviewer evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

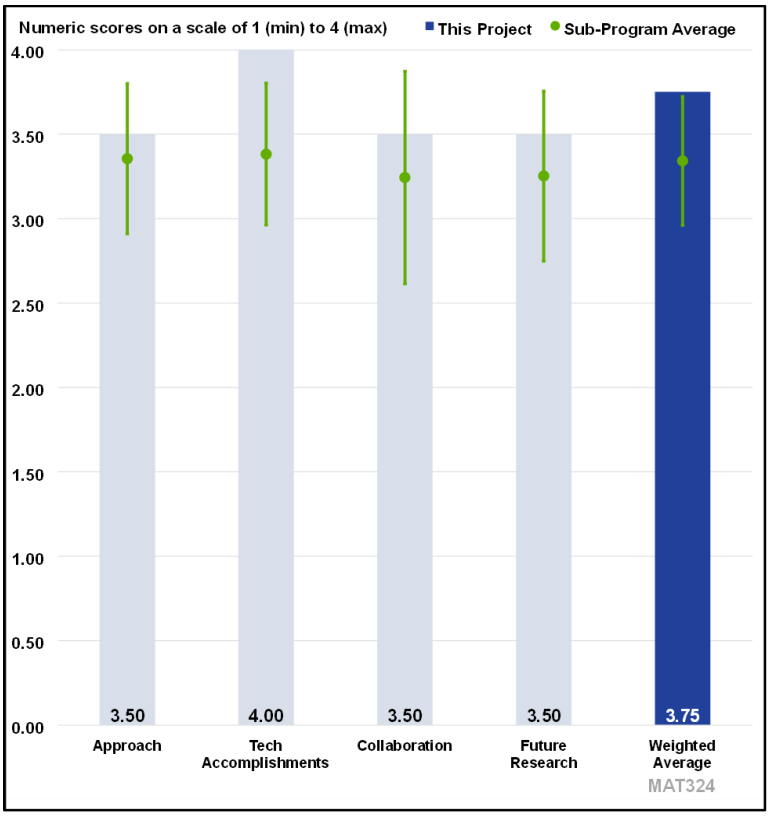

Figure 5-55 - Presentation Number: MAT324 Presentation Title: CCP 2.0, Task 2.5 – Electrospun Nanofiber Networks for Multifunctional Composites Principal Investigator: Christopher Bowland, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT324_Bowland_2025_p.pdf

Presentation Number:
MAT325
Presentation Title:
CCP 2.0, Task 2.6 – Sensing and Fatigue Behavior Characterization of Multifunctional Composites
Principal Investigator:
Maria Feng, Columbia University

Presenter
Tymon Nieduzak, Columbia University

Reviewer Sample Size
A total of four reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

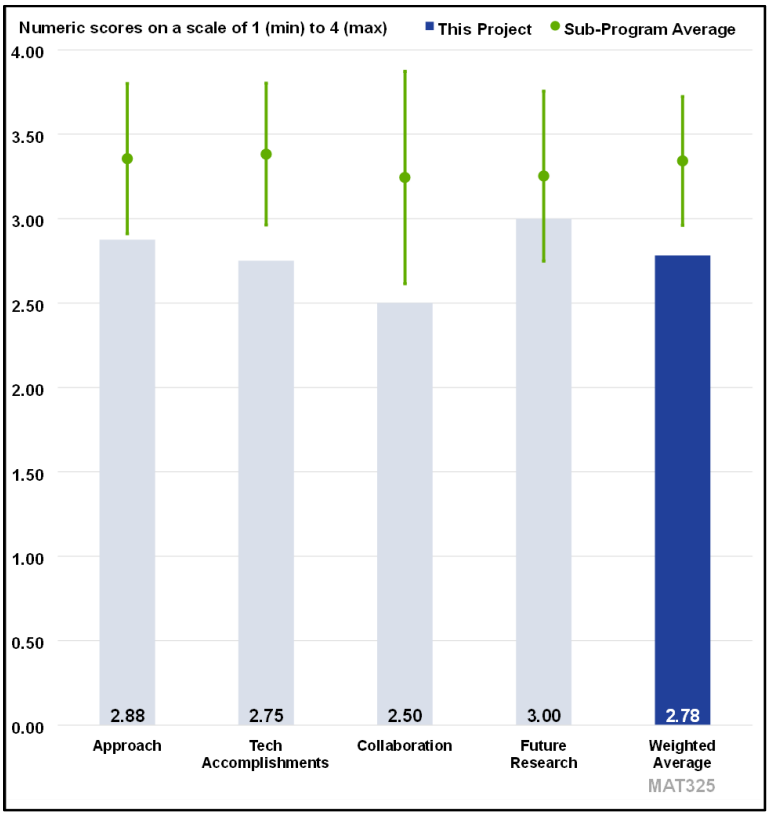

Figure 5-56 - Presentation Number: MAT325 Presentation Title: CCP 2.0, Task 2.6 – Sensing and Fatigue Behavior Characterization of Multifunctional Composites Principal Investigator: Maria Feng, Columbia University

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT325_Feng_2025_p.pdf

Presentation Number:
MAT326
Presentation Title:
CCP 2.0, Task 4.4 – 3D Printing of High-Fidelity Heteroatom Containing Functional Carbons for Thermal Management
Principal Investigator:
Joshua Damron, Oak Ridge National Laboratory

Presenter
Joshua Damron, Oak Ridge National Laboratory

Reviewer Sample Size
A total of two reviewers evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

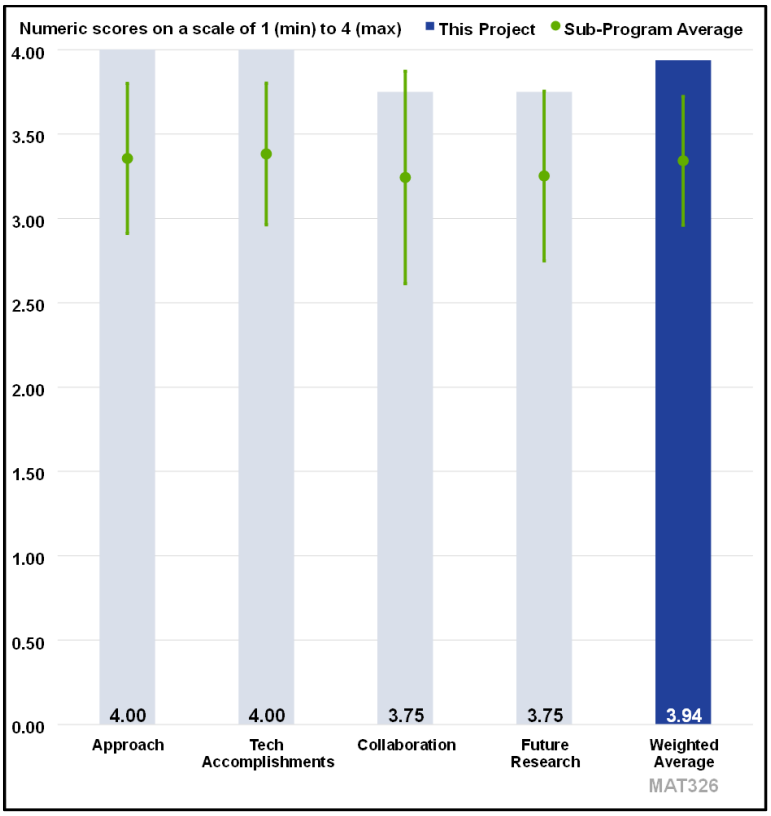

Figure 5-57 - Presentation Number: MAT326 Presentation Title: CCP 2.0, Task 4.4 — 3D Printing of High-Fidelity Heteroatom Containing Functional Carbons for Thermal Management Principal Investigator: Joshua Damron, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT326_Damron_2025_p.pdf

Presentation Number:
MAT340
Presentation Title:
CCP 2.0, Task 1.1 – Synthesis and Melt Spinning of Renewable Pitch for Low-Cost Carbon Fiber Precursor
Principal Investigator:
Michael Toomey, Oak Ridge National Laboratory

Presenter
Michael Toomey, Oak Ridge National Laboratory

Reviewer Sample Size
A total of one reviewer evaluated this project.

Project Relevance and Resources
100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

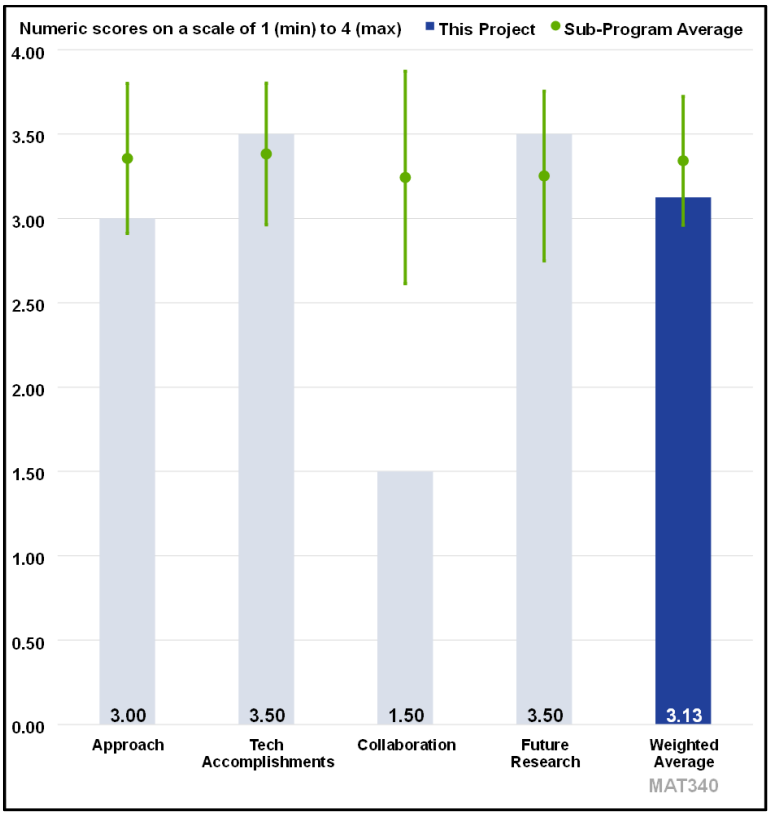

Figure 5-58 - Presentation Number: MAT340 Presentation Title: CCP 2.0, Task 1.1 — Synthesis and Melt Spinning of Renewable Pitch for Low-Cost Carbon Fiber Precursor Principal Investigator: Michael Toomey, Oak Ridge National Laboratory

Presentation Link:
https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/MAT340_Toomey_2025_p.pdf

For more information, visit: energy.gov

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