

MDF Technical Collaborations *At-A-Glance*

Partner	Project Title	Technology Area	Status
Alcoa Inc.	Lightweight Nano-Composites for Transportation and Energy Transmission Applications enabled by Electromagnetic Acoustic Transducer (EMAT) Technology	Magnetic Field Processing	active
Ascent Solar Technologies, Inc.	Printing and Pulsed Thermal Processing of Conductive Copper Grids for Solar Cells	Roll-to-Roll Processing	active
Avure Technologies, Inc. / Bodycote HIP	Hot Isostatic Pressing of Additive Manufactured Net Shape Ti-6Al-4V and CoCr Components for Superior Performance	Lightweight Metals Processing	pending
CK Technologies, LLC	Collaboration Project for Arc Plasma Lamp for Sintering of High Energy Storage Dielectric Materials	Additive Manufacturing	pending
Composite Applications Group (CAG)	Direct Comparison of ORNL Low Cost Carbon Fiber with Commercially Available Industrial Grade Carbon Fiber in Pultrusion Samples Representative of An Application Currently Being Developed For Lightweighting of Dry Bulk Tank Trailers	Carbon Fiber/Composites	active
Continental Structural Plastics	Solution for Carbon fiber Wet-Out Issue for Low Cost Sheet Molding Carbon Fiber Composite Production	Carbon Fiber/Composites	pending
Cummins	Material Fatigue Life Enhancement of Grey Cast Iron Using Magnetic Processing	Magnetic Field Processing	active
Eck Industries	Demonstration of the Impact of Thermomagnetic Processing on the Solution Heat Treatment and Aging Kinetics in a Cast Aluminum Alloy	Magnetic Field Processing	active
FMC Lithium	Demonstration of Deposition and Integration of Stabilized Lithium Metal Powder (SLMP) into Electrode Surfaces and Packaging in Battery Pouch Cell	Energy Storage	active
GE Energy	Evaluation of Additive Manufacturing Technologies to Gas Turbine Components	Additive Manufacturing	pending
GE Energy	Transient Field Processing as Applied to Novel lower cost Nickel-Iron Alloys for use in Heavy Duty Gas Turbine components	Magnetic Field Processing	pending
Honeywell Aerospace	Residual Stress Determination of Direct Metal Laser Sintered (DMLS) IN738 Specimens and Parts	Additive Manufacturing	pending
Lockheed Martin	Deposition and Characterization of High Strength Apex Polymer through Fused Deposition Modeling	Additive Manufacturing	pending
Metalsa	Effect of Magnetic Field Over the Tempering Cycle and the Final Mechanical Properties of the Steel Usually Used as Base Material for Truck Rail Manufacturing	Magnetic Field Processing	active
Northrup Grumman Remotec	Exploring the Feasibility to Use Additive Manufacturing for Light Weight Ground Robotic Platforms	Additive Manufacturing	active
NovaCentrix	Photonic Curing of Metal Films for Direct-Write Sensor Development	Roll-to-Roll Processing	pending
Pixelligent Technologies LLC	Development Roll-to-Roll Manufacturing Process of ZrO2 Nanocrystals/Acrylic Nanocomposites for High Refractive Index Applications	Roll-to-Roll Processing	pending
Queen City Forging	Magnetic Field Processing of Aluminum based Alloy and Aluminum based Metal Matrix Composites for Increased Temperature Performance on the Compressor of a Diesel Engine Turbocharger	Magnetic Field Processing	active

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Radio Systems Corp	Using Direct Metal Deposition to Fabricate Mold plates for an Injection Mold Machine Allowing for the Evaluation of Cost Effective Near-Sourcing Opportunities in Larger, High Volume Consumer Products	Additive Manufacturing	pending
Saint Gobain / Verallia North America (VNA)	Demonstration of the Impact of Thermomagnetic Processing of Glass Contact Equipment for the Manufacturing of Glass Containers	Magnetic Field Processing	active
Sharp Laboratories of America	Synthesis of Earth Abundant Nanomaterials for Flexible Solar Cell Applications	Roll-to-Roll Processing	pending
Sisom Thin Films	Path towards a Marketable, High Performance Cu ₂ ZnSn(S,Se) ₄ Heterojunction Thin Film Solar Cell	Roll-to-Roll Processing	active
The Boeing Company	Feasibility of processing standard, high performance thermoplastics in an extrusion process outside an environmentally controlled chamber	Additive Manufacturing	pending
Vorbeck Materials Corp	Feasibility Demonstration of Graphene-Based Lithium Batteries with Enhanced Charge Rate and Energy Storage Capacity	Energy Storage	pending
XG Sciences	Development of Graphene – Titanium Composite Sheet with Increased Thermal Conductivity using Powder Metallurgy Processing	Lightweight Metals Processing	active