



for the Improvement of Mine Safety and Health, Inc.

Press Release

Alpha Foundation Announces \$2.85 Million for Technology Development and Exploratory Research Projects

June 26, 2017

Lenoir City, TN- The Alpha Foundation for the Improvement of Mine Safety and Health has announced approximately \$2.85 million in new awards in two areas -- technology development and exploratory research focused on mining-related health problems. The research projects are directed towards fulfilling the Foundation’s mission to improve mine safety and health through funding research and development projects by qualified academic institutions and other not-for-profit organizations. For the first time, the Foundation issued two contemporaneous solicitations in February 2017. Both focused on shorter term efforts using new approaches to meet targeted goals and encourage broader participation.

The Technology Development projects are directed toward building some tangible device, instrument or machine that addresses a targeted area of mine safety and health. Patterned after the “challenge grant” concept, a short-term grant has been given to demonstrate proof-of-concept of a proposed technology at the laboratory level. If the proof-of-concept is successful, the grantee will have the opportunity to apply for a second grant for a multi-year effort with significant additional funding to advance the concept to a working prototype and validate its capability through a high fidelity simulated or real operational environment.

The projects funded in this category and lead institutions are:

<u>Title</u>	<u>Organization</u>
Miniaturized and Real Time Gas Sensors for Mine Safety and Health	Oakland University
Improving Communication in Noise for Miners Wearing Hearing Protection	University of Connecticut Health Center
Development of Direct Sensing Sampler for Submicron Mining Particles including Coal, Silica and Nano-sized Diesel Particulates	Colorado State University
Simple and Accurate Positioning to Enable Vehicle Autonomy in Underground Mines	Oregon State University
Intrinsically Safe Underground Aerial Reconnaissance Platform Development	UMWA
A Hybrid Geopolymer-biopolymer Cementitious Material for Pumpable Roof Support	University of Arizona
Collecting Mine Dust Particles with Liquid-coated Vibrating Meshes	Virginia Tech
A Smart Device for Mine Dust Characterization and Coal Workers’ Health Improvement: Combining Non-Destructive, Element-Specific X-ray CT with Big Data Analytics & Machine Learning	Virginia Tech

Flying Underground	Colorado School of Mines
Development of an Advanced Real-Time Personal Coal Dust Monitoring Instrument Based on Photo-acoustic Spectroscopy	University of Nevada Reno
Demonstration of a UAV-based Digital Photogrammetry System for Geological Mapping and Geotechnical Characterization of Fractured Rock Masses at Hazardous Underground Sites	Montana Tech

The Exploratory Research Projects Regarding Mining-Related Health Problems grants provide funding for projects that can make progress toward the identification and control of hazardous workplace exposures causing or aggravating adverse health effects among mine workers. Studies that have potential for contributing to or leading to an intervention were of particular interest and follow up proposals for promising efforts will also be welcomed.

The projects funded in this category and lead institutions are:

<u>Title</u>	<u>Organization</u>
The Effect of Dust Particles on Airway Mucus Viscosity and Mucociliary Transport	University of California, Merced
Coal Mining Risk of Arthritis, including Auto-Immune Rheumatologic Disease	The Regents of the University of California, San Francisco
Using Wearable IMUs to Evaluate Musculoskeletal Disorder Risk in Underground Mining Activities	South Dakota School of Mines & Technology
Effects of Whole Body Vibration Exposure on Physiological Stresses in Mining Heavy Equipment Vehicle Operators	Oregon State University
Innovations in Applied Decision Theory for Mine Surveillance and Health and Safety Efforts	University of North Carolina at Chapel Hill
Explore the Integration of Distributed Lag Models for Diesel Exhaust with Methods to Control Healthy Worker Survivor Bias to Assess Benefits of Exposure Interventions in Non-metal Miners	University of California Berkeley
Evaluating the Effects of Multi-axial Whole Body Vibration Exposure on Postural Stability in Mining Heavy Equipment Vehicle Operators	Oregon State University

For additional information about the recently awarded grants, the complete Alpha Foundation research portfolio, or the Alpha Foundation in general, visit www.alpha-foundation.org or e-mail to grants@alpha-foundation.org