

# CENTER OF EXCELLENCE FOR AEROSPACE PARTICULATE EMISSIONS REDUCTION RESEARCH

---

**G34 Shrenk Hall**

**Philip D. Whitefield, (Director)**

**[pwhite@mst.edu](mailto:pwhite@mst.edu)**

**<http://coe.mst.edu>**

The Missouri S&T COE is a university/industry consortium coordinated by Missouri University of Science and Technology conducting critical research that is providing the tools to characterize, measure, and predict propulsion particulate emissions in current and future aircraft. These tools will be validated both in the field and in realistic laboratory test environments that integrate propulsion altitude cells with state-of-the-art diagnostic systems and numerical modeling, and will be used as much needed consistent standards for current and future engine design by the U.S. and for characterizing the aircraft component of combustion emission in the assessment of local air quality in and around our airports.

The Missouri S&T COE was a founding member and the lead entity for emissions characterization in the Partnership for Air Transportation Noise and Emissions Reduction (PARTNER) a leading aviation cooperative research organization, and a FAA/NASA/Transport Canada/US DoD/US EPA-sponsored Center of Excellence. The Missouri S&T COE is also a founding member and the lead entity for emissions characterization in the Aviation Sustainability CENTER (ASCENT), the new FAA/NASA/Transport Canada/US DOD/US EPA-sponsored Center of Excellence for Alternative Jet Fuels and Environment. Our objectives are to characterize the emissions (both small particles and condensable gaseous species) from aircraft and airports through measurements, understanding and model the microphysical processes associated with particle formation, and determine the health effects of emissions. The characterization of emissions from aircraft and airports requires comprehensive measurement of small particles and condensable gaseous species. In fact, it requires measurement of both the emissions of individual airplanes as they contribute to the total aircraft segment of the emissions budget of an airport, and the emissions at the fence line of the airport due to all airport operations.

The major tasks of the COE are:

- Analyze and Correlate Particle Concentration Data
- Study quantifying emission indexes
- Develop Field Testing Data

Visit our website at: <http://coe.mst.edu> or e-mail [pwhite@mst.edu](mailto:pwhite@mst.edu).  
([pwhite@mst.edu](mailto:pwhite@mst.edu))