



Making a Difference — Beyond the Tailpipe Moves Forward

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With the end of the [Beyond the Tailpipe](#) project in March 2024, we have formed a new group to continue the impressive research that this project inspired into the relatively new topic of toxic particles and emissions from brakes and tires. New funding is supporting this change with new and ongoing collaborations, and many of the former Tailpipers will continue with these projects. Our new group is called "TAB" for tailpipes, air, and brakes — the web pages for this new endeavor are currently under construction.

The original Tailpipe group included faculty and researchers from the School of Public Health and the School of Social Sciences, but the TAB group's core team is comprised of researchers from the Departments of Chemistry and Earth System Science. The focus of our studies has narrowed as well, concentrating on the measurement and analysis of particles and gases. Our partnership with GREEN-MPNA will continue — they will assist with community air sampling and will advise on locations that are suitable for our studies using our mobile lab, as well as facilitating outreach efforts.

We are developing new systems and equipment which can be applied to this project and many others proposed for study by AirUCI researchers. For example, the Smith group has fabricated a battery powered mobile monitoring system and the DOJ team has modified an old lathe to serve as a custom dynamometer for studying tire and brake particles, shown here with some of our TAB team.

Initially we would like to know, based on laboratory studies, if emissions from brakes and tires can be detected and quantified in a vulnerable local Environmental Justice community in Santa Ana, California. Results of our research will continue to be shared with the community as they work toward improved health outcomes and air quality.

Our initial studies will focus on the composition and size of particles, the electrical charge of particles, volatile organic compounds and trace gases in emissions, and will take into account traffic patterns—and even the effects of wind and weather and daytime vs nighttime emissions. We will measure, analyze, and quantify tracers for these emissions and assess potential exposure levels at selected sites in Santa Ana. These sites will be chosen in consultation with our MPNA collaborators combined with CalEnviroScreen 4.0. Our choice of sites will also consider proximity to public schools in the Santa Ana Unified School District, which will facilitate education and outreach activities designed to introduce grades 3-12 students to our research, our instruments, and the importance of understanding health impacts from unexpected sources.

The Tailpiper studies have resulted in at least four papers published in major journals, with more in preparation, and gave ammunition to GREEN-MPNA in their dealings with agencies and entities that make decisions about air quality. The City of Santa Ana, for example, has sent high-level representatives to our stakeholder meetings and learned first-hand from our presentations about the health effects of air pollution. The community is engaged in improving the quality of the air they breathe — our work has clearly made a difference in environmental justice for our neighboring city and its residents.

Look for additional information about our TAB group as the new web pages go live.

