

249th American Chemical Society National Meeting
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I attended the 249th ACS National Meeting in Denver, Colorado, which took place on March 22-26, 2015, thanks in part to a travel award generously provided by The Aerosol Society. A key component of this conference was a special symposium entitled “Atmospheric Chemistry: Transformation of Matter in the Troposphere”, which was organized by Miriam Freedman and Daniel Cziczo as part of the activities in the Division of Physical Chemistry. The symposium consisted of eight separate sessions throughout the conference, each focused on a different aspect of gases and particles in the atmosphere. The specific topics for these sessions included new particle formation and growth; ice nucleation; water and organic aerosol; aqueous chemistry; aerosol organic chemistry; heterogeneous chemistry, sea spray, mineral dust, and black carbon; and gas phase atmospheric chemistry. Clearly a wide range of subjects relevant to aerosol were covered. Presentations in these sessions spanned a range of different experimental, computational, and even modeling approaches. Of particular note is that three separate groups presented studies that revolved around optical trapping of aerosol, an emerging technique in the aerosol field.

I gave a presentation entitled “Direct and Quantitative Measurement of the Surface Tension of Airborne Micrometer Droplets” in the water and organic aerosol session. This work reported a new method by which the surface tension of optically trapped droplets can be quantitatively determined by inducing coalescence of two droplets and studying the (very fast) processes that occur during the coalescence event. This approach enables determination of the surface tension of a droplet containing only picoliters of material with an accuracy and precision of about 1 mN/m. Additionally, the experimental setup permits study of how surface tension can change with changing ambient conditions. The presentation was very well received, with a number of questions, many quite technical. It was clear from the questions immediately after my presentation and the feedback I received throughout the week that there is much interest in the aerosol community for this approach.

Attendance at this specific meeting benefitted me substantially as it was my first opportunity to present the exciting research I am doing at University of Bristol since joining Professor Jonathan Reid’s group last August. It enabled me to meet a number of new scientists in the field and also to catch up with others I already know. Additionally, the conference was beneficial in that I was able to better see how the work I am currently doing fits in with what others in the field are doing, and as a result I now have a number of ideas for future experiments. The generous travel award provided by The Aerosol Society really helped to facilitate my attendance at this conference, and I am very grateful to have been a recipient of their Early Career Scientist Travel Award.