

Multi-phase Chemical Processes
Invited Monday 10:00 – 10:40
From the Gas Phase to Particles and Back Again

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Airborne particles have well-known effects on health, visibility and climate. A significant fraction of the particle mass and number concentration often arises from gas phase oxidations of organic precursors to form low- and semi-volatile compounds that form new particles or are taken up to grow existing particles to larger sizes. However, major uncertainties exist in understanding how this secondary organic aerosol (SOA) is formed and grows. We report here laboratory studies of new particle formation and growth in some common atmospheric systems, including reactions of methanesulfonic acid as well as the oxidation of several biogenic organic compounds. The key role of experimental and theoretical gas phase kinetics in these systems will be highlighted.

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