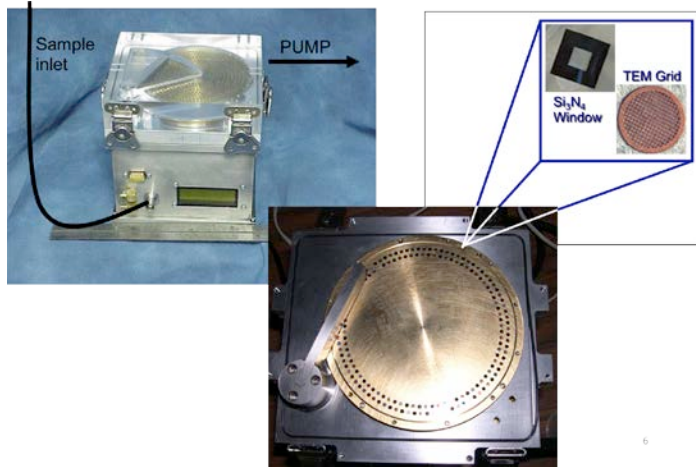


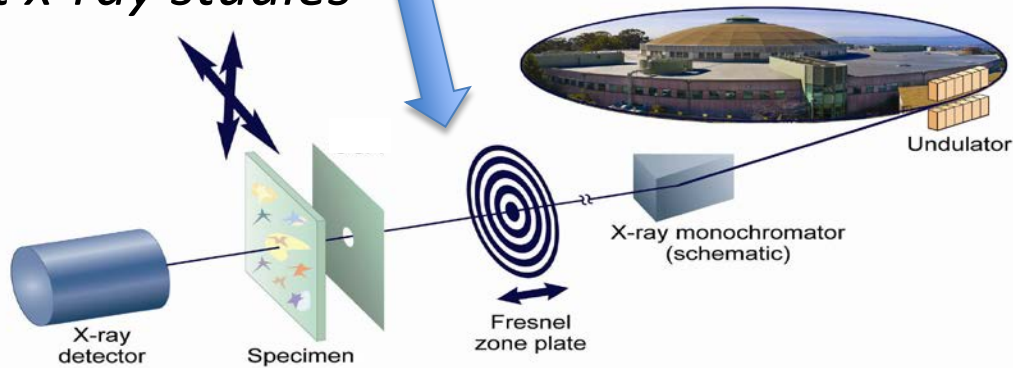
Spectroscopies & Microscopies of Field Samples



SEM/EDX

A. Laskin, B. Wang

soft x-ray studies



M. Gilles
R O'Brien
R. Moffet

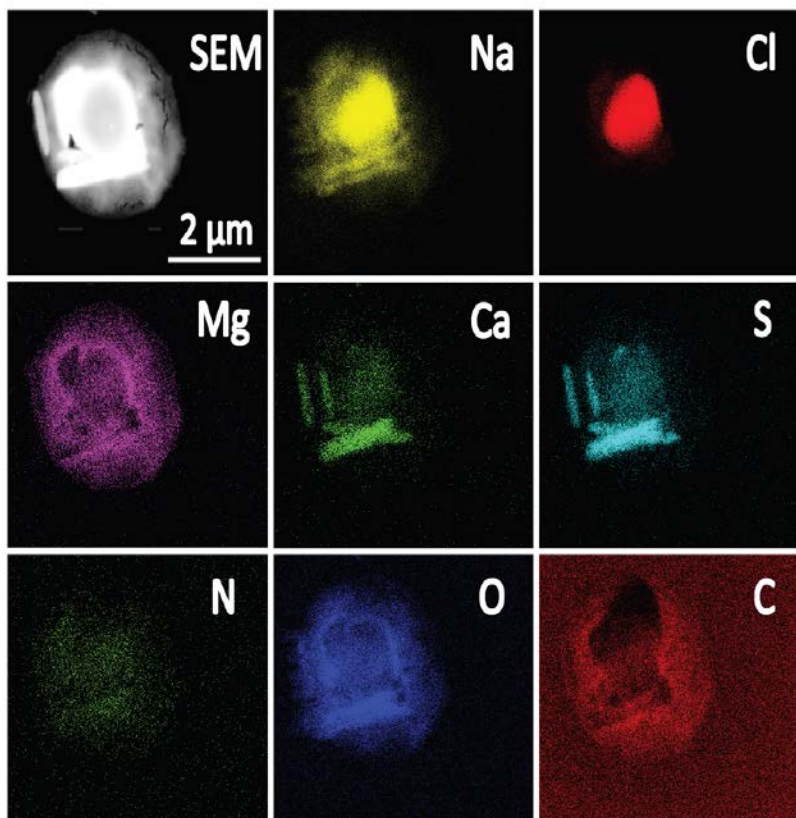


UNIVERSITY OF THE
PACIFIC

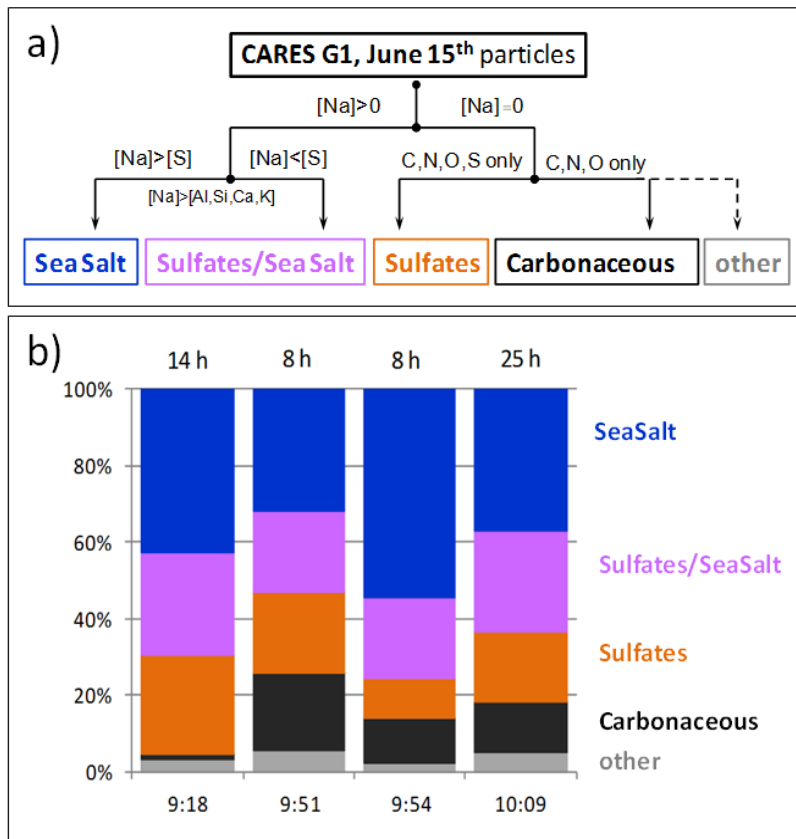


D. Knopf
IN, CCN

Elemental Analysis



Aerosol Particle Categories

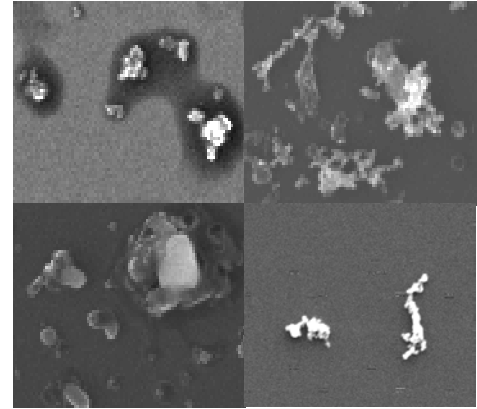


break down samples into aerosol categories

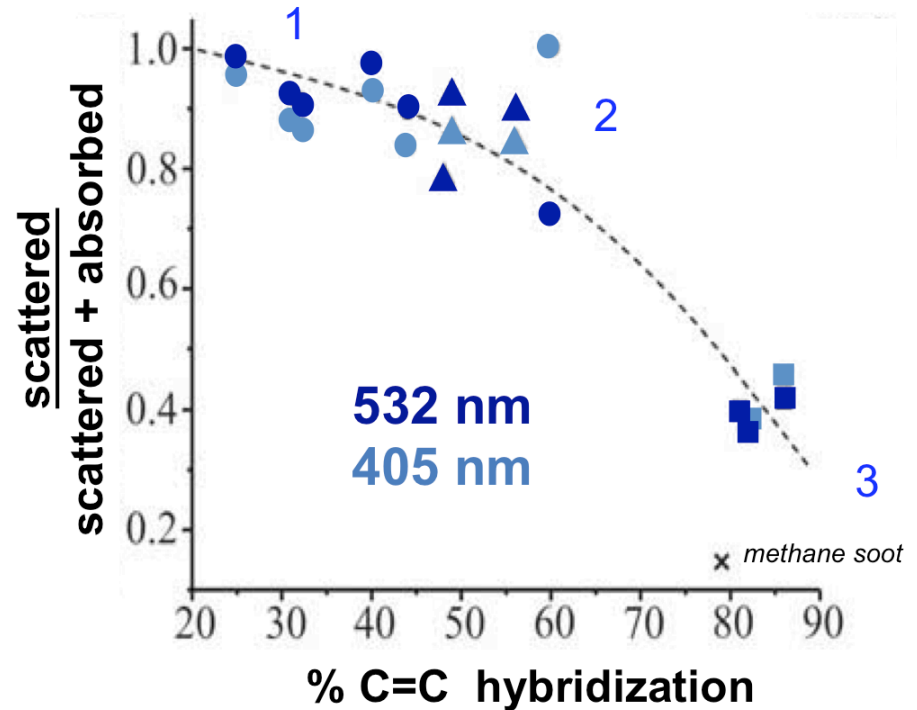
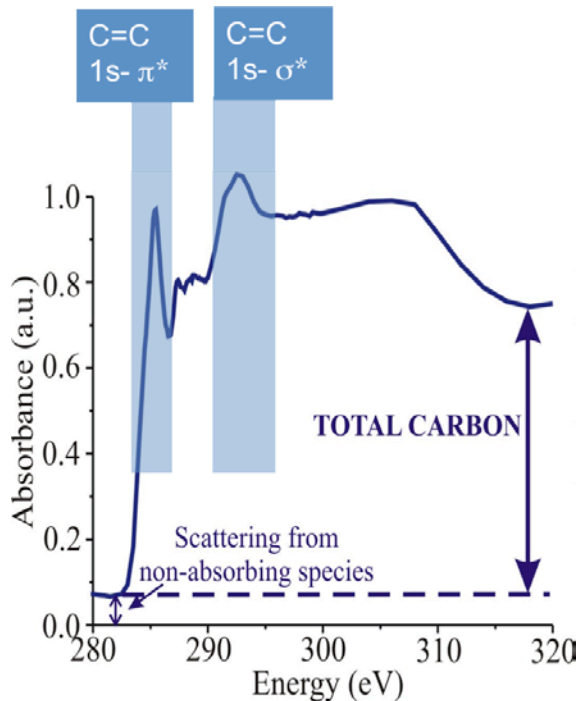
Pick a subset for x-ray studies

Elemental analysis of thousands to tens of thousand of particles

Combustion Particulate: correlate bonding w/ optical properties

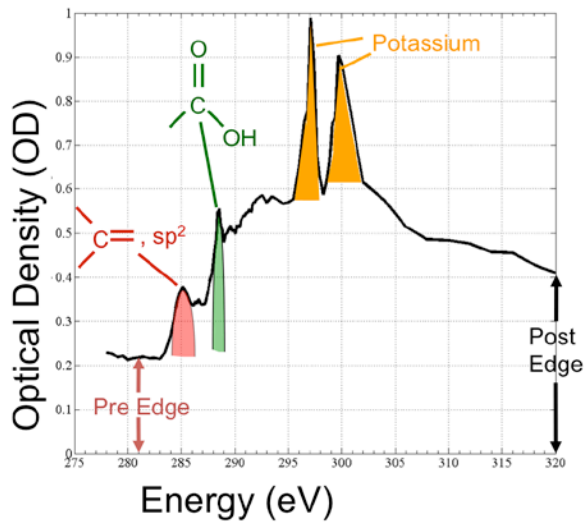


Spatially resolved bonding provides information on absorption properties in the UV

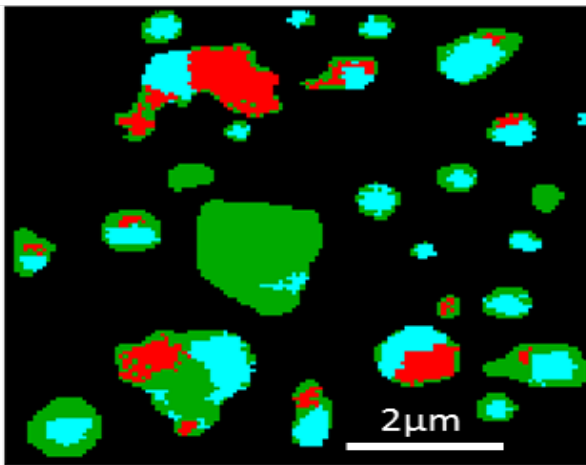


Field Studies: Mixing State & Evolution

Count # of particles in each mixing state as a function of atmospheric aging

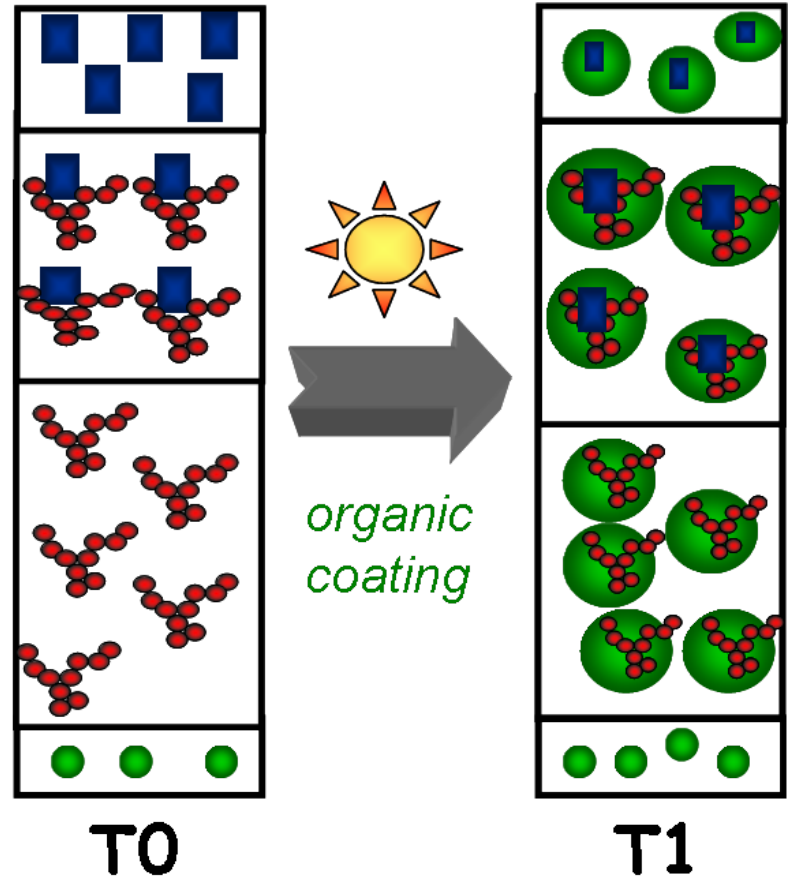


NEXAFS spectra
distinguishes carbon
bonding



Map bonding onto each pixel
of a particle

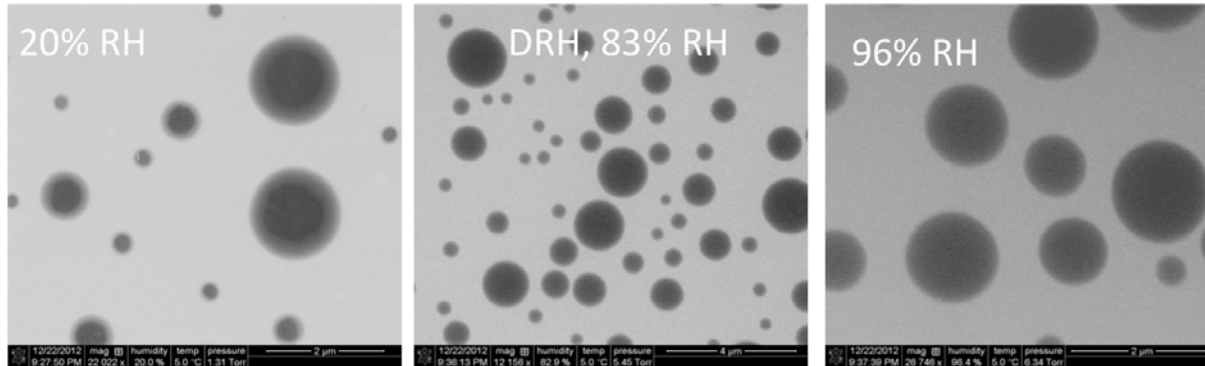
% particles w/
each
mixture type



R. Moffet, A. Laskin, M. Gilles

current studies: Phase States

In situ studies of Phase Separation as $f(\text{RH})$

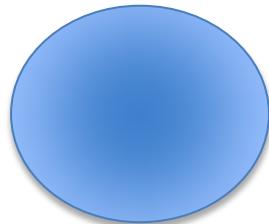


- SEM experiments
- in STXM follow chemical changes/concentration gradients w (RH)

A. Laskin, B. Wang, R. O'Brien, A. Bertram, R. Moffet, M. Gilles

SOA Phase

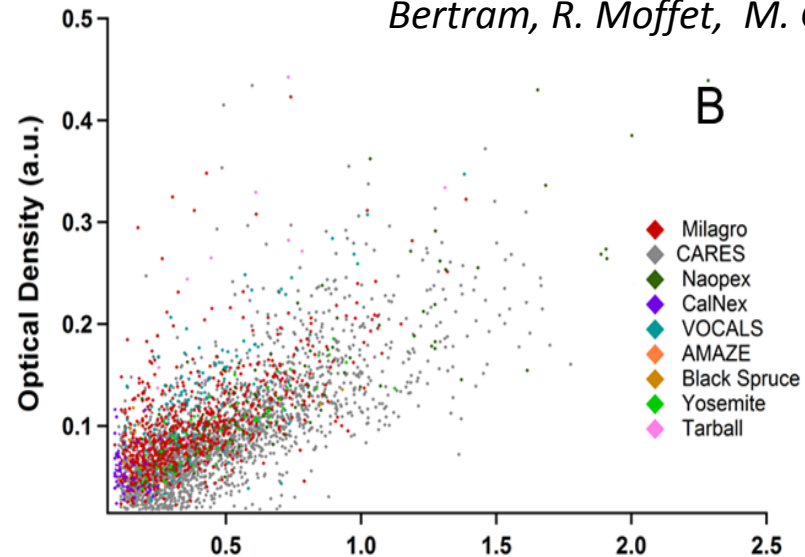
Glassy



Liquid



Particle thickness on impaction depends upon phase—is there a diameter dependence to absorption?

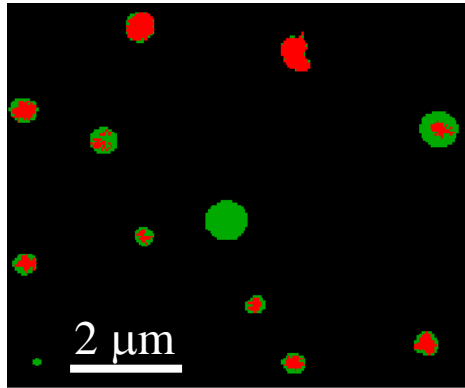
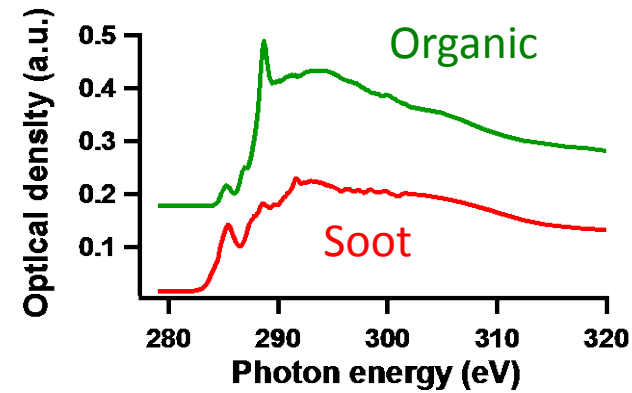


Laboratory SOA as $f(\text{RH})$ and precursor—are they the same phase as field SOA?
(Gilles, Moffet Nizkordov, Laskin)

CARES-in progress

Soot Core & Organic Coating

- Inclusion location
- Relative contribution soot/organic
- Influence on optical enhancement
- Correlate w/ measured optical properties



R. O'Brien, R. Moffet,
A. Laskin, M. Gilles

