PM2.5 Lens

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Particle Focusing in the Lens

- 1.3 Torr inlet
- 10⁻³ torr exit

- Computational Fluid Dynamics (Fluent)
  - Calculate particle trajectories for different lens and inlet configurations
  - Calculate fraction that impact vaporizer (transmission efficiency)
• Computational fluid dynamics modeling of high pressure lens and inlet
  → semi-analytical model
  → new design for standard lens.

Larger particles lost at 2\textsuperscript{nd} and 3\textsuperscript{rd} aperture.
PM 2.5!
Particle velocities are higher than standard lens, but b velocity curve does not flatten at large sizes the way the HP lens does.
Lens alignment -- different size particles (300 nm to 2.5 micron) focus in roughly the same place.
Next:
• Improve machining – better small particle transmission, better alignment.
• Test transmission efficiency in ACSM (shorter chamber) and TOF-ACSM (different pumping).