

Diagnostics

The UCICL maintains an array of various diagnostic tools for experimental studies of combustion systems, both gas and liquid fueled. The UCICL also has experience developing new tools that may be deemed valuable for quantifying and/or characterizing phenomena of interest. The table below summarizes the current instrumentation and techniques which are available.

“Conventional” Diagnostics:

- Extractive Emissions (3 rack systems for criteria pollutants, 2 portable systems)
- Air Toxics system (per EPA TO-5, TO-14)
- Temperature, Soot, GC/MS
- High Speed Video
- Acoustic Sampling
- LabView based data acquisition systems
- Smoke Number/Smoke Point measurement systems
- Thermophoretic Sampling

Laser Diagnostics:

- Laser Anemometry (2 2D systems)
- Digital Particle Image Velocimetry
- Coherent Anti-Stokes Raman Scattering
- Raman Scattering
- Planar Laser Induced Fluorescence
- Laser Rayleigh
- Laser Diffraction
- Phase Doppler Interferometry (2 systems)
- Optical Patternation
- Chemiluminescence Imaging/Sensing
- Differential Absorption for Fuel Vapor
- Infrared Absorption for Hydrocarbon Concentration
- Intensity Ratioing for Fine particles
- Transient Grating Spectroscopy

