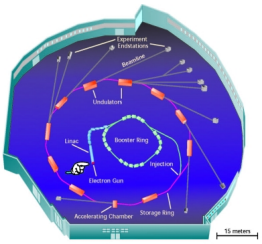
What is Synchrotron Infrared Light and Why is it Useful?

Synchrotron infrared light is simply infrared light that is produced from a synchrotron. Although most synchrotron light sources are optimized to produce X-ray and vacuum ultraviolet radiation, they also produce broad band radiation in the infrared region. The primary advantage of synchrotron infrared radiation is its brightness. Because the light originates from a small packet of electrons, the source can be treated as a point source. Thus, infrared light from a synchrotron can be easily collimated and/or focused to diffraction limited spot sizes (~1-10 μm), allowing high spatial resolution (infrared spectromicroscopy) and high spectral resolution.



High Brightness

- Diffraction-limited spot sizes for microscopy
- Easily collimated for high spectral resolution

More Far-IR Flux

- Increased Signal to Noise
- Smaller samples

Pulsed Source

- Fast timing measurements (nanosecond)