McPHERSON

4-instruments for the extreme ultraviolet

Four instrument systems developed specifically for analytical and diagnostic spectral metrology of soft x-ray and ultrafast extreme ultraviolet photon sources and laser systems. These spectrometer instruments can make optical measurements from 0.5 to more than 500 nanometers. Working in the UV? McPherson has it covered.

McPherson makes spectrometers proven to work at the shortest optical wavelengths. From wavelengths less than one nanometer, up to the visible light range, our analytical and diagnostic instruments fit to your application. They work in high harmonic generation (HHG) laser diagnostics. They work in advanced semiconductor extreme UV metrology and analytics. They work in high temperature soft x-ray plasma physics diagnostics. All are available for ultra high (UHV) or high-vacuum applications. McPherson manufactures numerous spectrometer models and optical designs. Here are those with staying power popular across many spectroscopy disciplines.

1. For measuring low energy deep-UV wavelengths (50-500nm) there is the Model 234/302. It's a great instrument to transition from ultraviolet to wavelengths as short as 30 nanometers. Works equally well in scanning applications as with direct detection CCD for rapid collection of diagnostic spectra. If you need finer spectral resolution, consider Model 235 or Model 225 for the same wavelength range.
2. Do you need analysis and diagnostics with high energy spectra (1-300nm)? Then the vacuum ultraviolet (VUV) Model 248/310 fits the bill. It works with point detectors or as a scanning monochromator using concave spherical gratings. The slit or detectors scan along the Rowland circle. It works with direct-detection CCD, MCP intensifier, and when integrated with a spectral lamp, makes a tunable light source. It's great for metrology and calibration in advance semiconductor, space science and astrophysics.
3. If high-energy spectral diagnostics are the goal (0.5-150nm) the Model 251MX is an easy answer. It uses aberration corrected diffraction gratings that produce a 25mm wide flat field at the direct detection CCD (or gated microchannel plate intensifier.) A variety of diffraction gratings are available and soft x-ray coverage is improved with two installed simultaneously. This XUV spectrograph has few moving parts and is simple to deploy in the soft x-ray (SXR) and vacuum ultraviolet range.
4. Our newest model, OP-XCT, uses toroidal mirrors and plane gratings for point-to-point imaging and when built as a tandem, or double-monochromator, time compensation. This is useful in EUV and SXR short pulse and ultrafast laser applications. Range depends on the selected diffraction gratings – it holds three – and is usually 8-120nm. Unique off plane grating geometry provides very high diffraction efficiency. It is useful as a monochromator in time correlated and angle resolved photoemission spectroscopy (ARPES) as well as other high energy investigations.

Call McPherson to learn more about the monochromator right for your short wavelength applications. We can help you select the right system, without reinventing the wheel

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McPherson designs and manufactures scanning monochromators, flat field spectrographs, vacuum spectrometers and measurement systems for reflectance, transmittance, absorbance and more. It provides accessories like light sources, detectors, data acquisition software, sample chambers, telescopes and collimators. McPherson is a privately held corporation, founded in 1953 and based in Chelmsford, MA USA. For more information, visit www.mcphersoninc.com