A Better Way to Profile your Ion Beam in Instrument Design for More Accurate Analysis

PHOTONIS has combined two of our superior detection and analysis technologies into a new digital ion beam profiling unit. The new Ion Beam Profiler combines a large Microchannel plate (up to 120mm) in a complete assembly with the PHOTONIS Nocturn, a high-resolution digital CMOS low-light camera which is immune to sudden light damage. Together these highly sensitive imaging components offer a detailed image of your instrument's ion beam, allowing system designers to identify and correct any areas of ion loss that had previously been overlooked. This new diagnostic tool allows the instrument to be designed to maximize the amount of ions collected for a superior analysis.

Tracing the Path

Ion optics modeling software is often used to design and predict the ion path within a mass spectrometer. The conventional method for aligning an ion beam consists of scanning the beam over a Faraday cup or electron multiplier, integrating the current, and finding the settings which produce the highest signal. However, ion trajectories can be influenced by many factors which are not considered in the model. Efficiently transporting ions from the source through the mass filter is critical for maximizing instrument sensitivity.

The new PHOTONIS Ion Beam Profiler can visualize the location of any charged particle (Ion, Electron, UV, photon or soft X-Ray), enabling the instrument designer to ensure all available signal ions are collected. The unit can capture images from the phosphor screen at up to 100 frames per second and store them on a PC for collaboration and comparison testing. A strobe trigger is available to synchronize the camera to a specific event.

Versatile Applications

The new Ion Beam Profiling unit can be used in wide range of applications, including ion optic model verification, Imaging TOF, VUV Spectroscopy and high energy physics as well as ion beam profiling. The unit can be custom-fit with a specific microchannel plate and electro-optic housing to fit your unique application.