

## **MoO-1**

### **PHOTOIONIZATION MASS SPECTROMETRY**

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The formation of ions in a mass spectrometer ion source can be accomplished by a variety of ionization methods. Photoionization of a molecule, or atom, generally involves the absorption of a vacuum ultraviolet or soft x-ray photon, with higher wavelength laser generated photons being used for ionization via a suitable multiphoton process.

One particularly useful advantage of using a photon beam for ionization of a neutral is that the amount of energy deposited depends only on the wavelength, which can be precisely measured and controlled. For this reason the technique of photoionization mass spectrometry (PIMS) has been used primarily for fundamental energetic, kinetic and structural investigations. However, there are various analytical studies that may also benefit from these particular experiments.

Although the first report of mass analysis of photoions appeared as early as 1929, it was the pioneering efforts of Lossing, Morrison and others some forty years ago that laid the foundations for modern photoionization mass spectrometry. In this lecture the development of the PIMS technique and its numerous applications will be reviewed.