FlexPES: a general-purpose beamline for photoemission and soft x-ray absorption at MAX IV

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A general-purpose soft x-ray beamline called FlexPES (Flexible PhotoElectron Spectroscopy) is open at the MAX IV Synchrotron Laboratory from 2020 for regular user experiments in the photon energy range 40-1500 eV.

The mission of this beamline is to serve a broad user community with versatile setups for different types of photoemission and X-ray absorption experiments (XPS, NEXAFS, ARPES, ResPE) on solid-, gas- and liquid-phase samples, including electron-ion coincidence studies. One branch is mainly reserved for experiments with solid samples (Surface & Material Science branch), the other one is for studies of volatile targets (Low-Density Matter branch). A number of experimental stations (up to 4 but for now 3) are available for different sample environments and different focusing conditions, from a defocused beam to the 50x20 um focused beam [1].

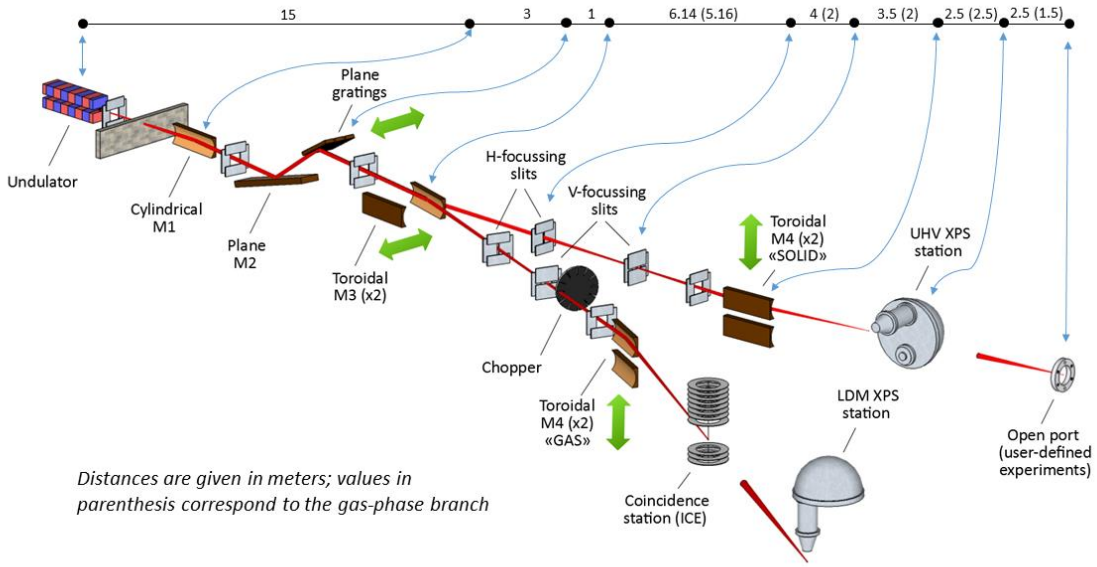

Figure 1: Optical layout of the FlexPES beamline.

In this talk the following topics will be addressed:

- Optical design and introduction of the end stations
- Present performance
- Examples of experiments

[1] A. Preobrajenski, A. Generalov, G. Öhrwall, M. Tchaplyguine, H. Tarawneh, S. Appelfeller, E. Frampton, N. Walsh, *J. Synchrotron Rad.* **30**, 831 (2023).