

## **High Performance X-Ray Optics for HAXPES**

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A high resolution x-ray monochromator with meV energy resolution is an indispensable component of HAXPES. Here we review some of the new schemes of high resolution x-ray optics being and to be used for HAXPES. Next, we introduce the recent development of the hard x-ray focusing mirrors that are able to make 50 nm or less focal spot. Although the current applications are mostly for scanning x-ray fluorescence microscopy, we believe they will soon be used for HAXPES applications. Finally, we introduce an XFEL project in Japan. Possible combination between HAXPES and XFEL will be discussed.