

Microprobe experimental setup on VESPERS beamline: Pros and Cons

Sample orientation		XRF		XRD		XAS		Other notes		
To beam	To vertical	4-element Votex (90° to beam, scattering minimized)	1-element Votex (45° to beam, scattering not minimized)	Laue	PD	Fluorescence	Transmission	Beam footprint on sample surface	Microscope view	Recommendation
90°	0°	No	Yes	No*	Yes	Yes, but not optimized	Yes	beam size	not optimized	recommended for high resolution XRF measurement
90°	45°			Yes	Yes	Yes, but not optimized	Yes	horizontal: beamsize; vertical: 1.4 x beamsize	optimized	recommended for simultaneous XRD/XRF measurement
45°	0°	Yes	No	No*	Yes	Yes	Yes	horizontal: 1.4 x beamsize; vertical: beamsize	not optimized	recommended for XRF/XANES measurement
45°	45°			Yes	Yes	Yes	Yes	horizontal: 1.4 x beamsize; vertical: 1.4 x beamsize; diagonal: 2 x beamsize	optimized	recommended only if need all XRF/XRD/XANES measurement with same setup
Beam Mode										
	Pink	Yes	Yes	Yes	No	No	No	Beamsize optimized to 3µm		continuous scattering background in XRF spectrum, may affect S/N ratio then sensitivity
Mono	Si(111) 0.01%	Yes	Yes	No	Yes	Yes	Yes	Beamsize may bigger than 3µm, due to flux requirement		E > 7 keV, for high energy resolution
	MLM1 1.6%			May	Yes	No	No			
	MLM2 10%			Yes	May	No	No			

Laue XRD detector default at 90° to beam in vertical plane, angle variable from 0-90°

*Not default, may possible