

SCS Instrument Parameters for Early User Experiments

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Photon beam parameters		
Electron energy	14 GeV	
Photon energy	1 keV,	other working points 0.5 – 3 keV possible
Tuning capability	Limited	
Bandwidth	0.5 %	of SASE
X-ray pulse energy	0.5-3 mJ	of SASE
X-ray pulse duration	50-100 fs	(FWHM)
Mono resolving power	2500-5000 @ 1 keV	
Number of pulses per train	≤300	
Repetition rate in pulse train	1.1 MHz	
Train repetition rate	10 Hz	
Polarization	Linear (horizontal)	
Focal spot size at sample, tunable	≤ 15 μm up to 500μm	Design value 1-2 μm (hor, ver), working points TBD
FFT experiment station		
Fixed target sample holder	Frame with 50 mm x 50 mm active area. No automated fast “single-shot” scanning for first run, room temperature, forward scattering geometry	
DC electromagnet	≤ 0.5 T	
Cryostat sample holder	Inquire for details	
Fast CCD detector		
Number of pixels	1920 x 960	
Pixel coordinates	Cartesian	
Pixel size	30 μm x 30 μm	
Max frame rate	60 Hz	
Beam hole size	1.8 mm	Beam stop mount available
Minimum sample-detector distance	40 mm	
Maximum sample-detector distance	630 mm for first run	

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DSSC detector	
Number of pixels	1024 x 1024
Pixel coordinates	Hexagonal
Pixel size	204 μm x 236 μm
Max frame rate	4.5 MHz
Beam hole size	Yes, inquire for details
Minimum sample-detector distance	350 mm during first early user operations (shortest design distance 230 mm without GV)
Maximum sample-detector distance	530 mm initially, longer distances possible, inquire for details
Optical laser system	
SASE3 PP laser	Not available for first early user experiments
Substitute laser system	Pending, under investigation

All parameters are subject to change, pending the commissioning process of the accelerator machine and the instrument.

Please discuss your experiment plans with your SCS instrument scientist **before** submitting your proposal. They can help you with any details that may have updated, assist with evaluating experiment feasibility, and much more.

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