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Performance and Upgrade Plans of HERIX at APS Sector 30

Ayman Said

Spectrometers and Instrumentation for IXS

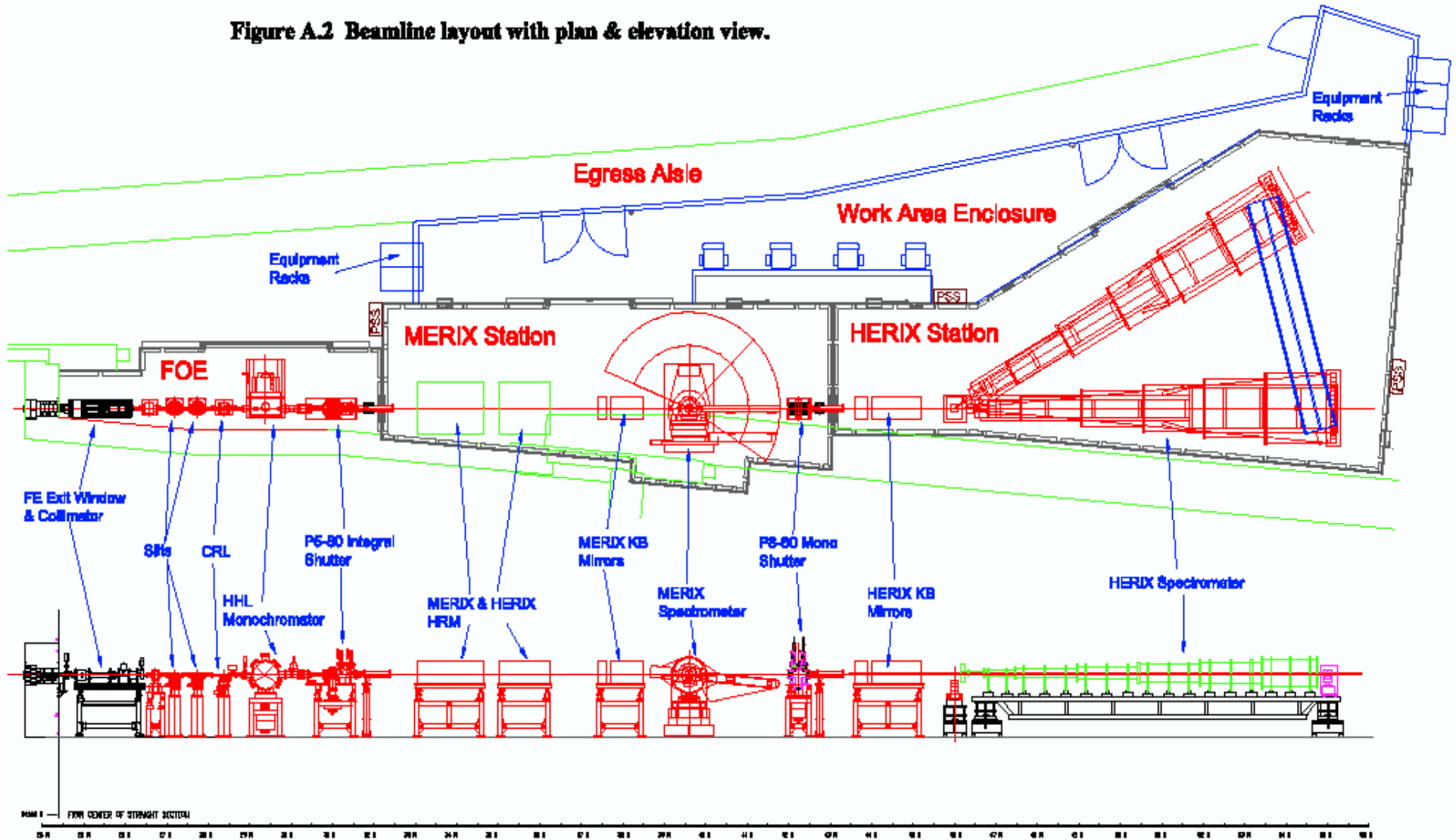
June 22, 2009

Summary

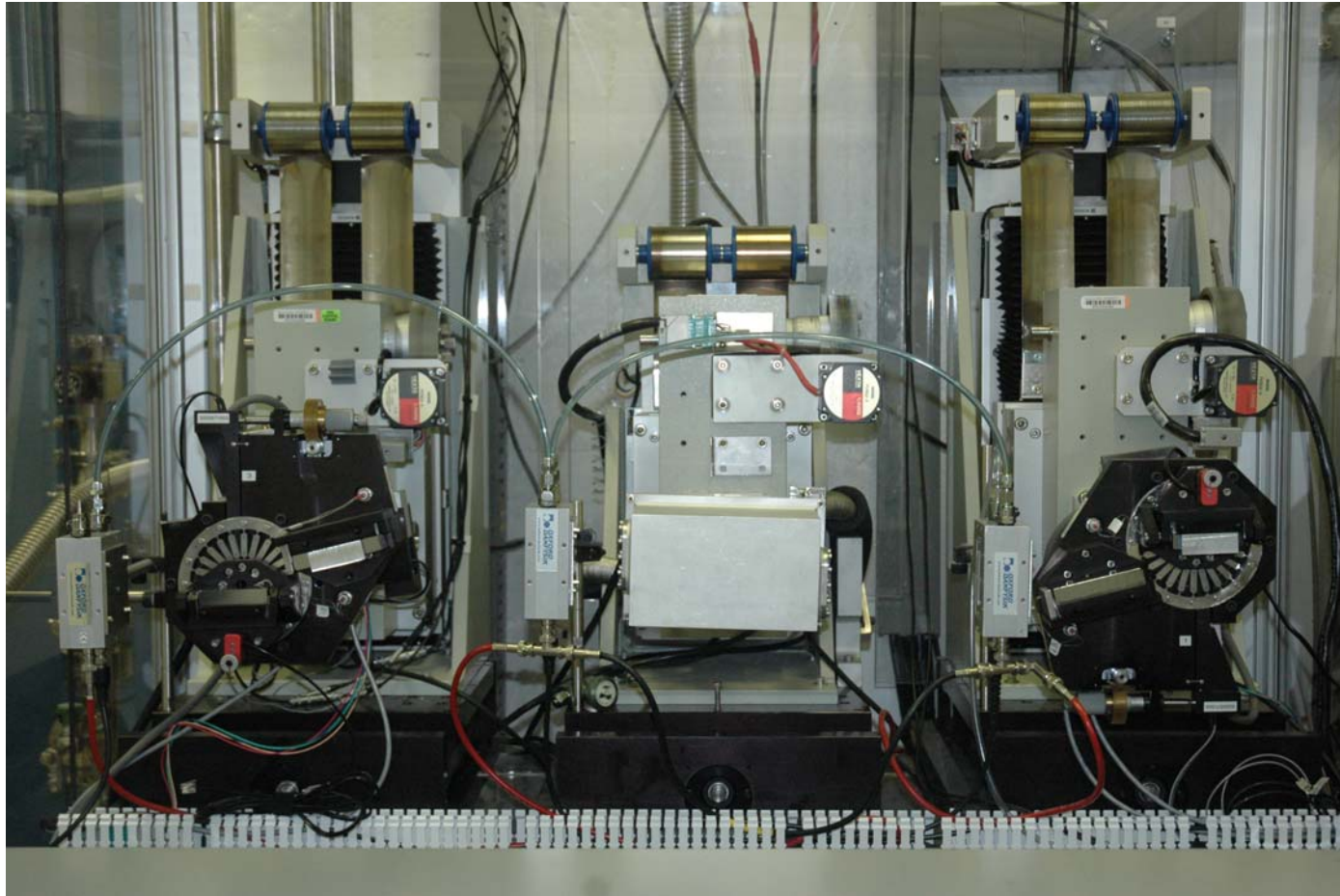
Energy (keV)	23.724
Energy resolution	1.5-1.65 meV
Number of analyzers	9
Maximum momentum transfer	74 nm ⁻¹
Momentum resolution with full analyzer	±0.6 nm ⁻¹
Spot size on the sample (V X H)	15X35 μ ²

Beamline Layout

Figure A.2 Beamline layout with plan & elevation view.



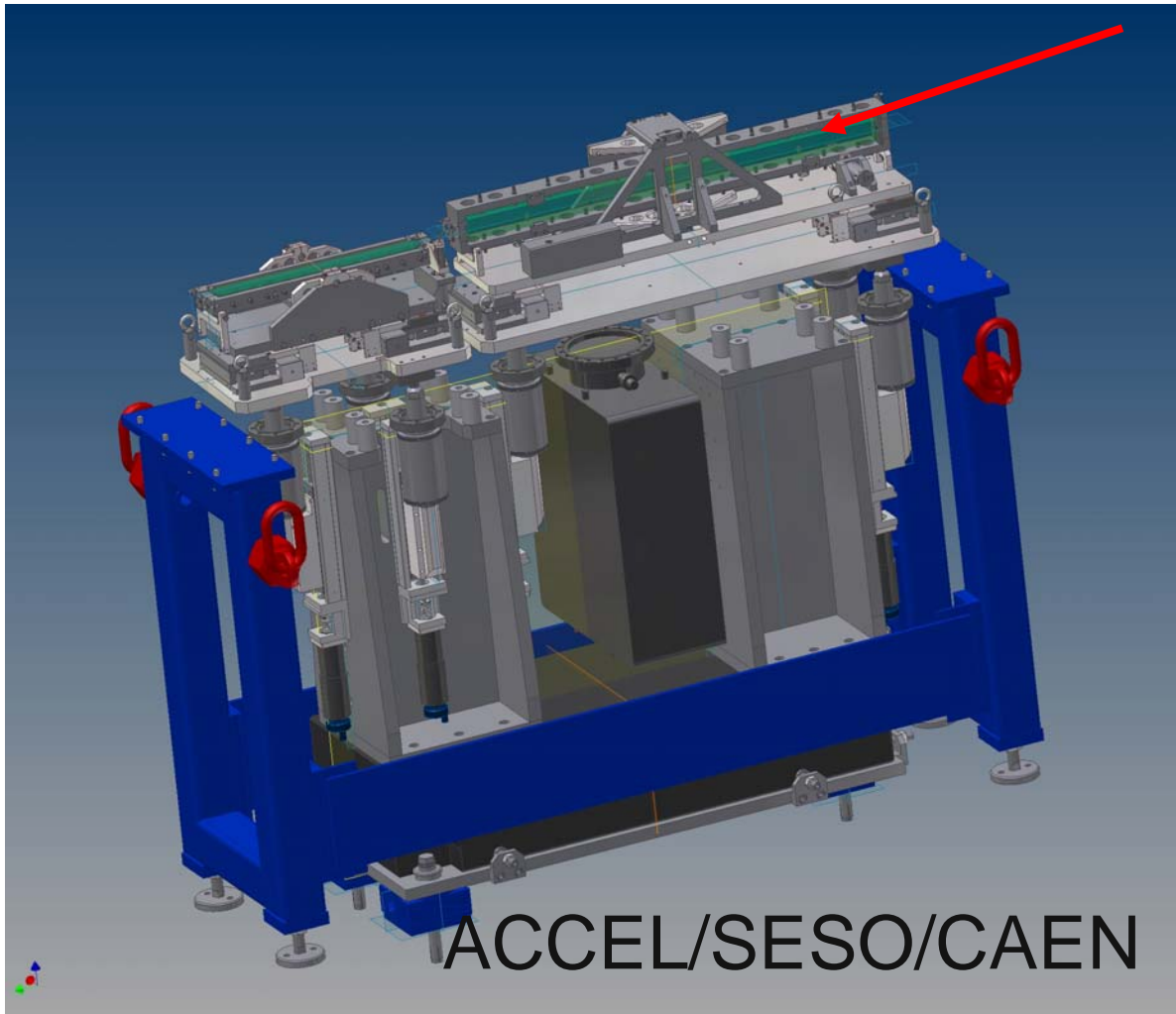
High energy resolution monochromator



Thomas S. Toellner



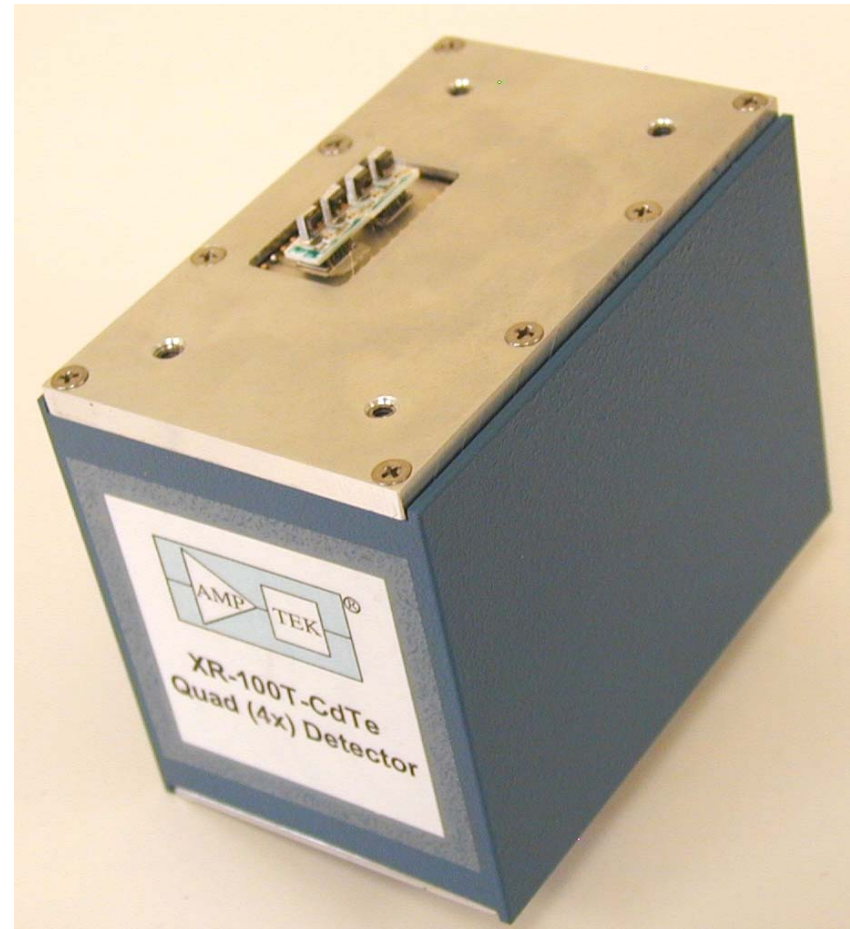
KB Mirror system (Bimorph mirrors)



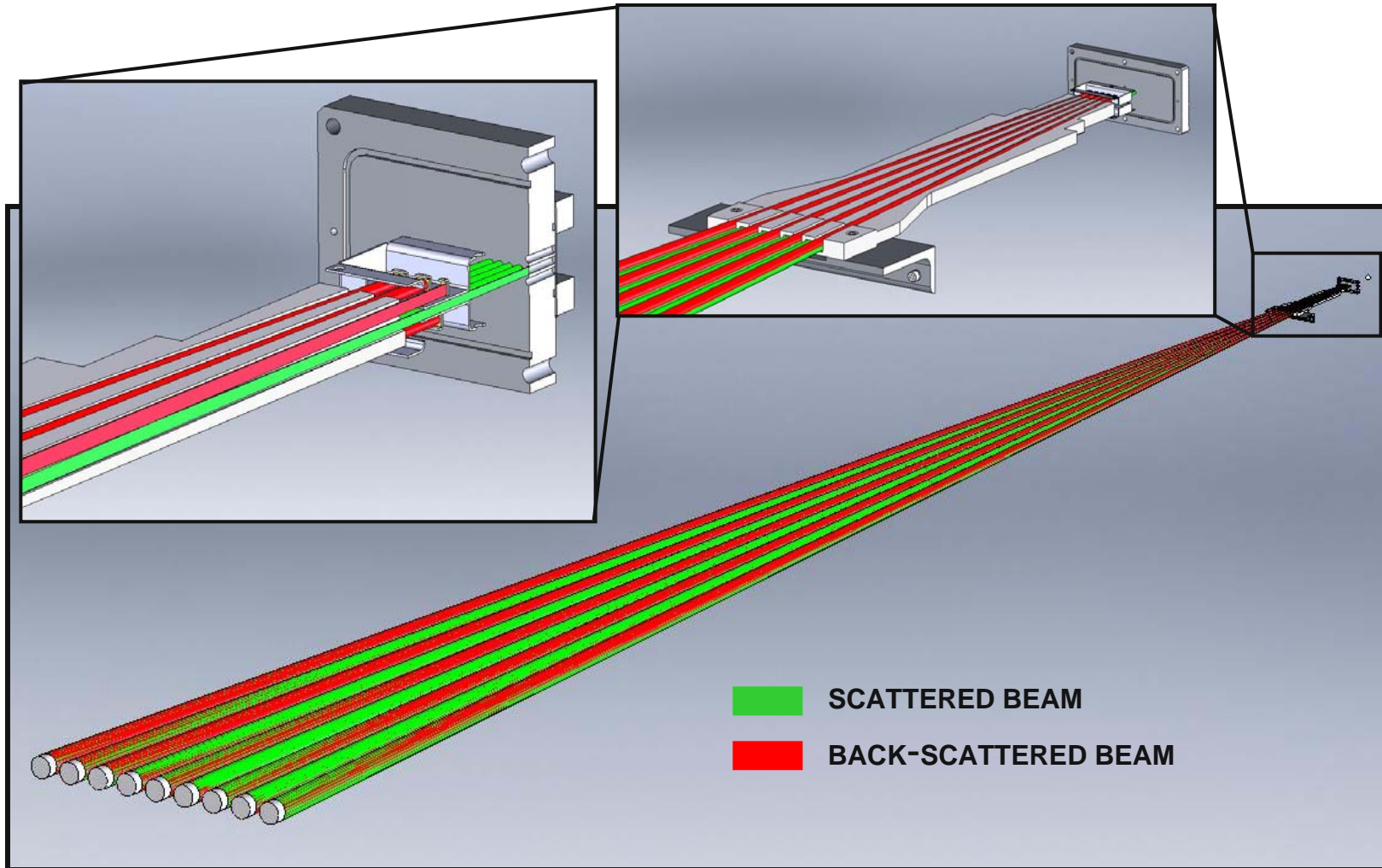
	HERIX HFM	HERIX VFM
Location (m)	44.2	44.9
Length (m)	0.9	0.45
Focal length (m)	1.8	1.08
Theta (mrad)	2.4	2.4
Coating	Pt/Pd/blank	Pt/Pd/blank
No. of electrodes	12	12
Slope error (μrad)	<2	<2

HERIX detectors

- CdTe Quad (4x) and Quint (5x) Amptek detectors.
- The detectors are mounted on a thermoelectric cooler.
- Working temperature: -25 C.
- Size: 3 x 3 x 1 mm³
- Dark count: ~1 mHz



Collimator



HERIX arm

$$2\theta_{\max} = 35^\circ$$

$$E = 23.724 \text{ keV}$$

$$Q_{\min} = 1 \text{ nm}^{-1}$$

$$Q_{\max} = 72.0 \text{ nm}^{-1}$$

$$\delta Q < 0.6 \text{ nm}^{-1}$$

9 Analyzers



QuickTime™ and a
YUV420 codec decompressor
are needed to see this picture.

