

IDENTIFYING MISSING CRITICAL CAPABILITIES



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SLAC

CRITICAL MISSING CAPABILITIES- HIGH ENERGY

- Although we have not completed the survey of capabilities, I can give you what I think what are the (current) unique capabilities that exist at APS.

- High Energy Diffraction Microscopy (HEDM @ 1-ID)
 - 60 to 100 keV x-rays from SCU
 - Very high demand

- Pair Distribution Function (PDF @ Sector 11)
 - 60 to 100 keV
 - High demand and very productive

- High Energy Scattering
 - 70 to 130 keV x-rays from SCU
 - Expect increased demand with installation of 1.1 m SCU

- High Energy Resolution Inelastic X-ray Scattering (HERIX @ 3-ID and 30-ID)
 - 30 keV with approximately 1 meV resolution

- High Speed Imaging and Diffraction (32-ID & DCS @ 35-ID)
 - Uses single pulse (need high flux per pulse, i.e. high current bunches)
 - Often done using hard x-ray pink beam
 - A lot of associated infrastructure (lasers, gas guns, etc.)

CRITICAL MISSING CAPABILITIES - UNIQUE INSTRUMENTATION AND CAPACITY ISSUES.

- Time-resolved Diffraction/Spectroscopy (BioCARS, @ 14-ID, 7-ID, & 11-ID)
 - Sometimes use single pulse (need high flux per pulse, i.e. high current bunches)
 - A lot of associated infrastructure (lasers, etc.)
- Magnetic Scattering (6-ID-C)
 - pulsed field magnets (30T)
- Magnetic Circular Dichroism (4-ID-C and 4-ID-D)
 - crystal phase retarding optics for hard x-ray branch
 - 12.8 cm period circularly polarizing undulator (CPU) for soft x-ray branch
 - Various magnets for sample environments
- MX
 - Not unique but rather a capacity issue for both "regular" beams and "micro-beams"
 - Particularly troublesome for our industrial users

QUESTIONS????