

Title	IEX Front End dedicated to the High Energy Photoemission and Soft X-Ray Resonant scattering (IEX) Beamline		
Project Requestor	Christa Benson		
Date	3/21/2008		
Group Leader(s)	Patric Den Hartog		
Machine or Sector Manager	Efim Gluskin		
Category	Accelerator hardware and Insertion Device Upgrades		
Content ID*	APS_1254429	Rev.	2 3/21/08 3:17 PM

*This row is filled in automatically on check in to ICMS. See Note ¹

Description:

Start Year (FY)	2009	Duration (Yr)	2
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Objectives:

A new Front end is required for a new insertion device beamline for intermediate energy X-ray scattering (IEX) at the APS. The beamline is funded by the Department of Energy together with the National Science Foundation. APS is responsible for the cost of the front end.

Benefit:

The Front End is necessary to supply x-rays to the beamline. The primary techniques offered by this new beamline are high-energy photoemission and soft X-ray resonant scattering.

Risks of Project: See Note ²

The risks for the construction of a new Front End are well known, as the APS has built and operated more than 50 Front Ends. No additional or new hazards are anticipated.

Consequences of Not Doing Project: See Note ³

The Front End is an essential part of any beamline.

Cost/Benefit Analysis: See Note ⁴

Many front ends have been built at the APS and the costs are well known. The engineering and design efforts and the fabrication and construction costs are predictable. Cost risk is associated with delays in the schedule or changes in the undulator design that effect the heat load.

Description:

The Front End will deliver x-rays from the undulator to the beamline. The x-rays are produced by a new APPLE-II type undulator, providing circularly polarized as well as horizontally and vertically polarized x-rays. Because of the unique requirements of this undulator, a new front end design is required. Masks, photon and safety shutters will require some redesign to accommodate the three modes. The cost estimate includes the cost of preparing a virgin sector with electrical service, cable trays, and water lines.

Funding Details

Cost: (\$K)

Use FY08 dollars.

Year	AIP	Contingency
1	800	
2		
3		
4		
5		
6		
7		
8		
9		
Total	800	10%

Contingency may be in dollars or percent. Enter figure for total project contingency.

Effort: (FTE)

The effort portion need not be filled out in detail by March 28

Year	Mechanical Engineer	Electrical Engineer	Physicist	Software Engineer	Tech	Designer	Post Doc	Total
1	0.5	0.1			0.3	0.5		1.4
2	0.2	0.05			0.2	0.1		0.55
3								0
4								0
5								0
6								0
7								0
8								0
9								0

Notes:

¹ **ICMS.** Check in first revision to ICMS as a *New Check In*. Subsequent revisions should be checked in as revisions to that document i.e. *Check Out* the previous version and *Check In* the new version. Be sure to complete the *Document Date* field on the check in screen.

² **Risk Assessment.** Advise of the potential impact to the facility or operations that may result as a consequence of performing the proposed activity. Example: If the proposed project is undertaken then other systems impacted by the work include ... (If no assessment is appropriate then enter NA.)

³ **Consequence Assessment.** Advise of the potential consequences to the facility or to operations if the proposal is not executed. Example: If the proposed project is not undertaken then ____ may happen to the facility. (If no assessment is appropriate then enter NA.)

⁴ **Cost Benefit Analysis.** Describe cost efficiencies or value of the risk mitigated by the expenditure. Example: Failure to complete this maintenance project will result in increased total costs to the APS for emergency repairs and this investment of ____ will also result in improved reliability of _____. (If no assessment is appropriate then enter NA.)