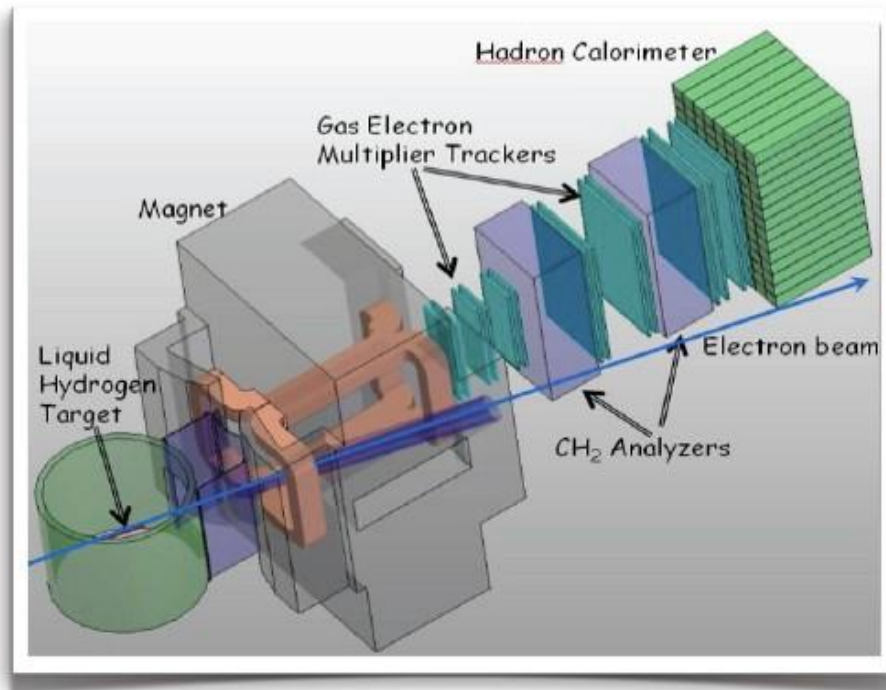


# ***Super-BigBite-Spectrometer (SBS)***

## **Monthly Progress Report**

**October 15, 2012**



## Introduction:

The SBS Program consists of three separate, but interrelated Projects.

- The first Project, **SBS Basic (WBS 1)**, involves the acquisition of an existing magnet and the associated work of preparing it for use during the SBS research program. The effort includes modifications to the magnet, including machining a slot in the yoke for beam passage, field clamps, and a solenoid to reduce the transverse magnetic field on the beam line, the design and development of the infrastructure needed to run the magnet, and the construction of the platform on which it will stand.
- The second Project, **Neutron Form Factor (WBS 2)**, involves the construction of twenty-nine GEM detector modules with associated front-end and DAQ modules to meet the requirements of the approved neutron form factor measurements.
- The third and final Project, **Proton Form Factor (WBS 3)**, involves the construction of thirty-five GEM detector modules with associated front-end and DAQ modules and the addition of pole shims for increased magnetic field integral to meet the requirements of the approved proton form factor measurements.

## Project Management Highlights:

This is the first Monthly Progress Report for the SBS Program. The collaboration is in place, and the Program Management Plan has been approved by Jefferson Lab management and by the DOE-NP Instrumentation Program Manager.

The first and second Projects within the SBS Program, SBS Basic (WBS 1) and Neutron Form Factor (WBS 2), started at the beginning of FY13. The third Project, Proton Form Factor (WBS 3), isn't scheduled to start until FY14.

Since the completion of the Program Management Plan, a key collaborator (Prof. M. Khandaker) has changed institutions from Norfolk State University (NSU) to Idaho State University (ISU). He remains committed to the project, and discussion is underway to incorporate ISU into the SBS Program Management Plan.

## WBS 1: SBS Basic

<b>WBS 1</b>	<b>SBS Basic: (Hall A Infrastructure)</b>	<b>WBS 1.01</b>	Milestones
		<b>WBS 1.02</b>	Project Oversight
		<b>WBS 1.1</b>	Magnet, power and construction
		<b>WBS 1.2</b>	Magnet/detector platforms
		<b>WBS 1.3</b>	Beam line

### WBS 1.01 Milestones:

ID #	Level	Milestone	Scheduled Date	Expected Date 10/1/2012	Actual Date
1.1-01M	1	Project start	10/1/2012	10/1/2012	<b>10/1/2012</b>
1.2-01M	2	Magnet delivered to JLab	4/30/2013	4/30/2013	
1.2-10M	2	Platform parts received	6/27/2014	6/27/2014	
1.2-20M	2	Magnet assembled on platform	3/19/2015	3/19/2015	
1.2-30M	2	Beam-line parts received	9/24/2015	9/24/2015	
1.1-10M	1	Project completion	1/29/2016	1/29/2016	

### WBS 1.02 Project Oversight:

- SBS collaboration meetings are being held via shared file (EVO) and teleconference weekly every Wednesday. During this Report period, meetings were held on Oct 5<sup>th</sup> and Oct 10<sup>th</sup>. Participants included Jefferson Lab, UVa, and NSU.
- Several Jefferson Lab management meetings were held the week of Sept 24<sup>th</sup> to establish the reporting structure and format.
- Project is staffed appropriately for this beginning stage, and includes a Jefferson Lab manager, scientist, and magnet engineer.
- Project accounts were established within the Jefferson Lab finance system.

- Collaboration meeting planned for October 18-19, 2012 at Jefferson Lab.

### **WBS 1.1 Magnet, Power and Construction:**

- Finalizing plans for executing the necessary modifications to the BNL 48D48 magnet.

### **WBS 1.2 Magnet/Detector Platforms:**

- Developing design for the magnet/detector support structure.

### **WBS 1.3 Beam Line:**

- No activity this period.

### **WBS 1 Costs:**

- Budget for this WBS for FY13 is \$838K.
- Costed and obligated to date (as of 10/1/2012): \$0K (0%)

## WBS 2: Neutron Form Factor

<b>WBS 2</b>	<b>Neutron Form Factor</b>	<b>WBS 2.01</b>	Milestones
		<b>WBS 2.02</b>	Project oversight
		<b>WBS 2.1</b>	GEMs (UVa)
		<b>WBS 2.2</b>	GEM Electronics (UVa)
		<b>WBS 2.3</b>	Electronics Hut, Lead Shielding, Lead platform, and Detector Frames
		<b>WBS 2.4</b>	Coordinate Detector

### WBS 2.01 Milestones:

ID #	Level	Milestone	Scheduled Date	Expected date 10/1/2012	Actual Date
2.1-01M	1	Project start	10/1/2012	10/1/2012	10/1/2012
2.2-01M	2	UVa receives GEM parts	2/3/2014	2/3/2014	
2.2-20M	2	UVa receives electronics parts	8/20/2014	8/20/2014	
2.2-10M	2	UVa GEM modules assembled and tested	10/17/2014	10/17/2014	
2.2-40M	2	Coordinate Detector Assembled	11/17/2014	11/17/2014	
2.2-30M	2	UVa front-end electronics assembled and tested	2/2/2015	2/22/2015	
2.2-40M10	2	WBS 2.3 completed (Electronics Hut Assembled etc.)	10/5/2015	10/5/2015	
2.1-10M	1	Project completion	1/29/2016	1/29/2016	

## **WBS 2.02 Project Oversight:**

- SBS collaboration meetings are being held via shared file (EVO) and teleconference weekly every Wednesday. During this Report period, meetings were held on Oct 5<sup>th</sup> and Oct 10<sup>th</sup>. Participants included Jefferson Lab, UVa, and NSU.
- Project is staffed appropriately for this beginning stage, and includes Jefferson Lab (manager, scientist, and magnet engineer), UVa (two scientists), and W&M (one scientist).
- Project accounts were established within the Jefferson Lab finance system.
- Collaboration meeting planned for October 18-19, 2012 at Jefferson Lab.
- Adam Sarty (St. Mary's University, Halifax, Nova Scotia) has joined the collaboration. We are working to define his role.

## **WBS 2.1 GEMs (UVA):**

- Pre-R&D work on GEM development is ongoing at UVa, and is projected to be completed by 3QFY13.

## **WBS 2.2 GEM Electronics (UVa):**

- Professor Mahbub Khandaker has moved from Norfolk State University to Idaho State University (ISU). He remains committed to the project, and discussion is underway to incorporate ISU into the SBS Program Management Plan. At this time Nilanga Liyanage (UVa) has agreed to take over the assembly and testing of the GEM electronics.

## **WBS 2.3 Electronics Hut, Lead Shielding, Lead platform, and Detector**

### **Frames:**

- No activity this period.

## **WBS 2.4 Coordinate Detector:**

- No activity this period.

## **WBS 2 Costs:**

- Budget for this WBS for FY13 is \$81K.
- Costed and obligated to date (as of 10/1/2012): \$0K (0%)

## WBS 3: Proton Form Factor

This Project is not scheduled to start until FY14: October 1, 2013. The WBS structure and milestone table are included below for completeness.

<b>WBS 3</b>	<b>Proton Form Factor</b>	<b>WBS 3.01</b>	Milestones
		<b>WBS 3.02</b>	Project Oversight
		<b>WBS 3.1</b>	Magnet Pole shims and exit field clamp
		<b>WBS 3.2</b>	GEM's (UVa)
		<b>WBS 3.3</b>	GEM electronics (UVa)
		<b>WBS 3.4</b>	Trigger (RU)

### WBS 3.01 Milestones:

ID #	Level	Milestone	Scheduled Date	Expected date	Actual Date
3.1-01M	1	Project start	10/1/2013	10/1/2013	
3.2-01M	2	UVa receives parts for GEM modules	8/20/2014	8/20/2014	
3.2-10M	2	UVa begins assembly of electronics	1/5/2015	1/5/2015	
3.2-50M	2	RU begins trigger design	1/6/2016	1/6/2016	
3.2-20M	2	UVa electronics assembly and tests completed	7/20/2016	7/20/2016	
3.2-30M	2	JLab receives pole shims	8/22/2016	8/22/2016	
3.2-40M	2	JLab receives exit field clamp	8/22/2016	8/22/2016	
3.2-70M	2	RU completes trigger	12/1/2016	12/1/2016	
3.2-60M	2	UVa GEM modules assembled (and tested)	2/2/2017	2/2/2017	
3.1-10M	1	Project completion	7/31/2017	7/31/2017	